



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY DRAFT HAZARDOUS WASTE MANAGEMENT STORAGE PERMIT

Permittee: Department of the Navy
Naval Surface Warfare Center, Dahlgren Division
17483 Dahlgren Road
Dahlgren, Virginia 22448-5100

EPA ID Number: VA7170024684

Pursuant to Chapter 14, Article 4, Title 10.1-1426, Code of Virginia (1950), as amended; and regulations promulgated thereunder by the Virginia Department of Environmental Quality, a Permit is renewed to the Department of the Navy, Dahlgren, Virginia (hereinafter called the Permittee), to store hazardous waste at a facility located in Dahlgren, Virginia at 17483 Dahlgren Road, and with a geographic location of latitude 38° 20' 15" North and longitude 77° 02 '15" West.

Structures 353C, 951, and 952 are the storage magazines which stores D001, D003, D005, D006, D007, D008, D009, D011, D030, and D036 EPA Hazardous Waste Codes. The Permittee shall comply with all terms and conditions set forth in this Permit including Attachments AA through GG. If the Permit and the above attachments conflict, the wording of the Permit shall prevail. The Permittee shall also comply with all applicable regulations contained in the Virginia Hazardous Waste Management Regulations (VHWMR) as codified in Title 9 of the Virginia Administrative Code, Agency 20, Chapter 60 (9 VAC 20-60), and in Code of Federal Regulations (CFR) Parts 124, 260, 261, 262, 264, 265, 268, 270, 271, 272, and 148. Applicable regulations are those which are in effect on the date of the final administrative action on this Permit as well as any self-implementing statutory provisions and related regulations which are automatically applicable to the Permittees' hazardous waste management activities, notwithstanding the conditions of this Permit.

This Permit is based on the administrative record and the assumption that the information submitted by the Permittees and contained in the administrative record is complete and accurate. The Permittees' failure in the application or during the permit renewal process to fully disclose

all relevant facts, or the Permittees' misrepresentation of any relevant facts at any time, shall be grounds for the termination or modification of this Permit, pursuant to 40 CFR 124.5 and 40 CFR 270.40 through 270.43, and also may be grounds for an enforcement action. The Permittee shall inform the Department of any deviations from Permit Conditions or changes from information provided in the application. In particular, the Permittee shall inform the Department of any proposed changes that might affect the ability of the Permittee to comply with applicable regulations and/or Permit Conditions, or which alter any of the conditions of the Permit in any way.

This Permit is effective as of _____, and shall remain in effect until _____ (ten years from effective date) unless revoked and reissued in accordance to 40 CFR 124.5, 270.40, and 270.41, terminated in accordance with 40 CFR 124.5, 40 CFR 270.40 and 40 CFR 270.43 and 40 CFR 124.5, 270.41 and 270.43, terminated in accordance with 40 CFR 124.5 and 4 CFR 270.40, or continued in accordance with 40 CFR 270.51.

Date Signed

Leslie A. Romanchik
Hazardous Waste Program Manager
Office of Waste Permitting and Compliance

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DEFINITIONS

For the purposes of this Permit, the following definitions shall apply:

- a. The term "**Permit**" shall mean the Permit issued by the Virginia Department of Environmental Quality, pursuant to Chapter 14, Article 4, Title 10.1, Code of Virginia (1950), as amended, and the Virginia Hazardous Waste Management Regulations (VHWMR) as codified in Title 9 of the *Virginia Administrative Code*, Agency 20, Chapter 60 (9 VAC 20-60).
- b. The term "**Director**" shall mean the Director of the Virginia Department of Environmental Quality or his designated representative.
- c. The term "**Department**" shall mean the Virginia Department of Environmental Quality (DEQ), (with the address as specified in Permit Condition I.I.2).
- d. The terms "**facility**" or "**site**" shall mean all contiguous portions of the Naval Support Facility, Dahlgren, Virginia as identified in the physical description of the property (including structures, appurtenances, and improvements). This property description is as set forth in Attachment AA of this Permit.
- e. The term "**permitted storage areas**" shall mean those portions of the facility used for container storage of hazardous waste as described in Permit Attachment AA.
- f. The term "**release**" shall mean any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any hazardous waste or hazardous constituents.
- g. The term "**Area of Concern**" shall mean an area at the facility or an off-site area, which is not at this time known to be a solid waste management unit, where hazardous waste and/or hazardous constituents are present or are suspected to be present as a result of a release from the facility.
- h. The term "**Hazardous Constituent**" shall mean a constituent that caused the Administrator to list the hazardous waste in 40 CFR 261, subpart D or a constituent listed in Table 1 of 40 CFR 261.24.
- i. The term "**Permittee**" shall mean the facility to which the Permit is issued.

- j. The term “**Regulated Unit**” shall mean the unit for which a permit has been issued by DEQ or EPA.
- k. The term “**EPA**” shall mean United States Environmental Protection Agency.
- l. The term “**Solid Waste Management Unit**” shall mean any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released.
- m. The term “**Days**” shall mean calendar days except as otherwise provided herein.
- n. All definitions contained in 40 CFR Sections 124.2, 260.10, 270.2, 264.141, 264.1031, 264.1051, 264.1081, and 9 VAC 20-60 are hereby incorporated, in their entirety, by reference into this Permit. Any of the definitions used above, (a) through (f), shall supersede any definition of the same term given in 40 CFR Sections 124.2, 260.10, 270.2, 264.141, 264.1031, 264.1051, 264.1081, and 9 VAC 20-60. Where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.
- o. Throughout the Permit, all references to 40 C.F.R. Parts 261-266, 268, 270, 273, 279, are as adopted by reference in the *Virginia Hazardous Waste Management Regulations*, 9 VAC 20-60.

MODULE I

STANDARD CONDITIONS

MODULE I - STANDARD CONDITIONS

I.A. EFFECT OF PERMIT

The Permittee is authorized to manage hazardous waste in accordance with the conditions of this Permit and in accordance with the applicable provisions of Title 9 of the Virginia Administrative Code, Agency 20, Chapter 60 (9 VAC 20-60) and 40 Code of Federal Regulations (CFR). Any management of hazardous waste by the Permittee in the facility which is not authorized by this Permit or 9 VAC 20-60, or and for which a permit is required under Chapter 14, Article 4, Title 10.1, Code of Virginia (1950), as amended, is prohibited. Compliance with this Permit constitutes compliance, for the purposes of enforcement, with Chapter 14, Article 4, Title 10.1, Code of Virginia (1950), as amended. This Permit does not convey any property rights of any sort, or any exclusive privilege. Possession of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of Commonwealth or local laws or regulations. Compliance with terms of this Permit may not constitute a defense to any action brought under Chapter 14, Article 8 of Title 10.1, Code of Virginia (1950) as amended for any other law governing protection of the public or the environment.

I.B. PERMIT ACTIONS

- I.B.1. This Permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR §§124.5, 270.30(f), 270.41, and 270.43. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance does not stay the applicability or enforceability of any Permit Condition.
- I.B.2. Permit modifications at the request of the Permittee shall be accomplished as specified by 40 CFR 270.42.
- I.B.3. This Permit may be renewed as specified in 40 CFR 270.10 and Permit Condition I.D.2. Review of any application for a permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations.

I.C. SEVERABILITY

- I.C.1. The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. Invalidation of any Commonwealth or Federal statutory or regulatory provision which forms the basis for any condition of this Permit does not affect the validity of any other Commonwealth or Federal statutory or regulatory basis for said condition.
- I.C.2. In the event that a condition of this Permit is stayed for any reason, the Permittee shall continue to comply with the related applicable and relevant permit standards in 40 CFR 270.10(e) until final resolution of the stayed condition unless the Director determines compliance with the related applicable and relevant permit standards would be technologically incompatible with compliance with other conditions of the Permit which have not been stayed.

I.D. DUTIES AND REQUIREMENTS

I.D.1. Duty to Comply

The Permittee shall comply with all conditions of this Permit, except that the Permittee need not comply with the conditions of this Permit to the extent and for the duration such noncompliance is authorized by an emergency permit 40 CFR 270.61. Any permit noncompliance, except under the terms of an emergency permit, constitutes a violation of Title 10.1 Code of Virginia (1950), as amended and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

I.D.2. Duty to Reapply

If the Permittee wishes to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee shall apply for and obtain a new permit as specified below.

- a. The Permittee shall submit a new application at least 180 days before the expiration date of the Permit, unless a later date has been granted by the Director.

- b. Pursuant to 40 CFR 270.10(h), the Director shall not grant permission for an application to be submitted later than the expiration date of the existing permit.

I.D.3. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action to argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

I.D.4. Duty to Mitigate

In the event of noncompliance with the Permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

I.D.5. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit.

I.D.6. Duty to Provide Information

The Permittee shall furnish, to the Director within a reasonable time, any pertinent information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this Permit.

I.D.7. Inspection and Entry

The Permittee shall allow the Director or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

-
- a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under conditions of this Permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and
 - d. Sample or monitor at reasonable times for the purposes of assuring permit compliance or as otherwise authorized by 9 VAC 20-60, any substances or parameters at any location.

I.D.8. Reporting Planned Changes

The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. This notice shall include a description of all incidents of noncompliance reasonably expected to result from the proposed changes.

I.D.9. Anticipated Noncompliance

The Permittee shall give advance written notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

I.D.10. New and Modified Portions of Waste Management Unit

The Permittee shall not store hazardous waste in any new or modified portion of the hazardous waste management unit, except as provided in 40 CFR 270.42, until the Permittee has submitted to the Director, by certified mail or hand delivery, a letter signed by the Permittee and a Virginia-registered professional engineer stating that the facility has been constructed or modified in compliance with the Permit; and:

- a. The Director has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the Permit; or
- b. Within 15 days of the date of submission of the letter required pursuant to Permit Condition I.D.10., if the Permittee has not received notice from the Director of his intent to inspect, prior inspection is waived and the Permittee may commence storage of hazardous waste.

I.D.11. Twenty-four Hour Reporting

The Permittee shall report any noncompliance which may endanger health or the environment to the Director. Information shall be provided orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. The information specified in “a” and “b” below shall be included as information which shall be reported orally within 24 hours.

- a. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supply sources shall be reported.
- b. Any information of a release or discharge of hazardous waste or of a fire or explosion at the facility, which could threaten the environment or human health outside the facility, shall be reported. The description of the occurrence and its cause shall include:
 - i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the facility;
 - iii. Date, time, and type of incident;
 - iv. Names and quantities of material(s) involved;
 - v. The extent of injuries, if any;
 - vi. An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and
 - vii. Estimated quantity and disposition of recovered material that resulted from the incident.
- c. A written submission shall also be provided to the Director within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the periods of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Permittee need not comply with the 5-day

written notice requirement only if the Director waives that requirement following verbal notification and the Permittee submits a written report within (15) days of the time the Permittee becomes aware of the circumstances.

I.D.12. Other Noncompliance

The Permittee shall report all other instances of noncompliance not otherwise reported pursuant to Permit Conditions I.D.11, I.D.13, and I.E.1 at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition I.D.11.

I.D.13. Other Information

Whenever the Permittee becomes aware that he failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the Permittee shall promptly submit such facts or information to the Director.

I.E. MONITORING AND RECORDS

I.E.1. Monitoring shall be performed and results shall be reported at the intervals specified in the Permit.

I.E.2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method specified in Appendix I of 40 CFR 261 or an equivalent method approved by the EPA. Laboratory methods must be those specified in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (SW-846, 3rd ed., November, 1986, as updated), *Standard Methods of Wastewater Analysis* (16th ed., 1985, as updated), or an equivalent method approved by the EPA.

I.E.3. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, all certifications required by 40 CFR 264.73(b)(9) and records of all data used to complete the application for this Permit, for a period of at least 3 years (or longer if specified elsewhere in this Permit) from the date of the sample, measurement, report, certification, or record. These retention periods may be extended by the request of the Director at any time and are automatically extended during the course of any unresolved enforcement actions regarding this facility.

I.E.4. Records of monitoring information shall include at a minimum:

- a. The date, exact place, and time of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

I.F. COMPLIANCE NOT CONSTITUTING DEFENSE

Compliance with the terms of this Permit does not constitute a defense to any action brought under Chapter 14, Article 8 of Title 10.1, Code of Virginia (1950), as amended, or any other Commonwealth law governing protection of the public or the environment.

I.G. TRANSFER OF PERMITS

This Permit is not transferable to any person, except after notice to the Director. The Director may require modification or revocation and reissuance pursuant to 40 CFR 124.5, 270.40, 270.41, 270.42, and 270.43 to change the name of the Permittee and incorporate such other requirements as may be necessary. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR 264 and 40 CFR 270.

I.H. PERMIT EXPIRATION AND CONTINUATION

Pursuant to 40 CFR 270.51, this Permit will remain in force until the effective date of a new permit, if the Permittee has submitted a timely, complete application pursuant to Permit Condition I.D.2.a and through no fault of the Permittee, the Director has not issued a new permit with an effective date on or before the expiration date of this Permit. All conditions of the continued permit shall remain fully effective and enforceable.

I.I. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DEPARTMENT

I.I.1. The Permittee shall submit biennial report to the Department, which covers facility activities during the previous calendar year. At a minimum this report will include:

- a. The generator biennial report pursuant to 40 CFR 262.41; and
- b. The hazardous waste management facility biennial report pursuant to 40 CFR 270.30(l)(9).

I.I.2. All reports, notifications or other submissions which are required by this Permit to be sent or given to the Director should be sent or be given to:

Director, Department of Environmental Quality
P.O. Box 11105
Richmond, VA 23218
Telephone Number: (804) 698-4020

Copies of all such correspondence should also be sent to:

Director, Northern Virginia Regional Office
Department of Environmental Quality
13901 Crown Court
Woodbridge, VA 22193

Virginia Program Manager (3LC50)
Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

I.J. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to the Director shall be signed and certified as specified by 9 VAC 20-60-270.11.

I.K. DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE

Current copies of the following documents, as amended, revised, and modified, shall be maintained at the facility (or other location approved by the Director). These documents shall be maintained during the term of this Permit, including any reissued permit, unless a lesser time is specified in the Permit.

- a. The Permit including all attachments, revisions and modifications;
- b. The Part A and Part B Permit Applications;
- c. The facility's operating record required by 40 CFR 264.15(b)(2) and 264.15(d);
- d. Inspection schedules and logs required by 40 CFR 264.16 and this Permit;
- e. Personnel training documents and records required by 40 CFR 264.16 and this Permit; and
- f. Closure Plans as required by 40 CFR 264.112(a) and this Permit.

I.L. APPROVAL/DISAPPROVAL OF SUBMISSIONS

The VDEQ will review the plans, reports, schedules and other documents (hereinafter collectively referred to as "submission") submitted which require the Director or VDEQ approval. The VDEQ will notify the Permittee in writing of the VDEQ's approval, conditional approval or disapproval of each submission.

Each submission required by this Permit is, upon approval by the Director, incorporated into this Permit. Any noncompliance with such VDEQ-approved submission shall be deemed noncompliance with this Permit. A conditionally approved submission, including any terms of such conditional approval set forth in VDEQ's decision, shall constitute the VDEQ-approved submission and shall be incorporated into this Permit.

In the event of VDEQ's conditional approval of submission, the Director shall specify in writing any deficiencies in the submission and the terms upon which approval of the submission is conditioned. If the Permittee disputes any term upon which approval of the submission was conditioned, the Permittee may file an appeal with the Director within 30 days of the approval (as provided for in Rule 2A:2 of the Supreme Court of Virginia). In the event of VDEQ disapproval of a submission, the Director shall specify the deficiencies in writing. The Permittee shall modify the submission to correct/address the specified deficiencies within a reasonable time period established by the Director taking into account the tasks to be performed, and submit the revised submission to VDEQ for approval. If the revised submission is disapproved, the Director will notify the Permittee of the deficiencies in writing and specify a schedule for the Permittee to correct the deficiencies and resubmit the submission to VDEQ. The Permittee shall correct the deficiencies as directed by VDEQ,

and forward the revised submission within the time period specified by VDEQ. In the event the Permittee disagrees with VDEQ's disapproval of the revised submission, the Permittee may file an appeal with the Director within 30 days of the disapproval (as provided for in Rule 2A:2 of the Supreme Court of Virginia).

MODULE II

GENERAL FACILITY CONDITIONS

MODULE II- GENERAL FACILITY CONDITIONS

II.A. WASTE ANALYSIS

II.A.1. General Waste Analysis

The Permittee shall follow the procedures described in the Waste Analysis Plan, Attachment II.BB. Waste analysis shall require, at a minimum, the maintenance of proper functioning instruments, use of approved sampling and analytical methods, verification of the validity of sampling and analytical procedures, and correct calculations. If the Permittee does not have the sufficient capability for analysis then the Permittee shall inform the laboratory performing the analysis that the laboratory must operate under the waste analysis conditions placed on the Permittee.

II.B. SECURITY

The Permittee shall comply with the security provisions of 40 CFR 264.14. The security provisions shall follow the outline in Attachment II.DD.

II.C. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection schedule set out in Attachment II.CC. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 40 CFR 264.15. Records of inspections shall be kept as required by 40 CFR 264.15(d) and Permit Conditions II.H.2.c.v.

II.D. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by 40 CFR 264.16. This training program shall follow the Training Outline, Attachment EE. The Permittee shall maintain training documents and records as required by 40 CFR 264.16(d) and Permit Conditions II.H.2.a.xi and II.H.2.c.iii.

II.E. GENERAL REQUIREMENTS FOR IGNITABLE AND REACTIVE WASTE

The Permittee shall comply with the requirements of 40 CFR 264.17. The Permittee shall follow the procedures for the handling of ignitable and reactive waste as specified in the Module III, Section III.E.

II.F. PREPARDNESS AND PREVENTION

II.F.1. Design and Operation of Facility

The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste constituents to air, soil, groundwater, or surface water which could threaten human health or the environment.

II.F.2. Required Equipment

At a minimum, the Permittee shall equip the facility with the equipment set forth in Attachment II.FF, as required by 40 CFR 264.32.

II.F.3. Testing and Maintenance of Equipment

The Permittee shall test and maintain the equipment specified in Permit Condition II.F.2 and in Attachment II.FF as necessary to assure its proper operation in time of emergency (40 CFR 264.33).

II.F.4. Access to Communications or Alarm System

The Permittee shall maintain access to the communication or alarm system as required by 40 CFR 264.34.

II.F.5. Arrangements with Local Authorities

The Permittee shall maintain arrangements with State and local authorities as required by 40 CFR 264 Subpart C, and Attachment II.FF.4. If State and local officials refuse to enter into or renew existing preparedness and prevention arrangements with the Permittee, the Permittee shall document this refusal in the operating record pursuant to Permit Condition II.H.2.d.iv.

II.G. CONTINGENCY PLAN

II.G.1. Implementation of Plan

The Permittee shall immediately carry out the provisions of the Contingency Plan, Attachment II.FF, and follow the emergency procedures described by 40 CFR 264.56, whenever there is an imminent or actual fire, explosion, or release of hazardous waste or constituents which threaten or could threaten human health or the environment.

II.G.2. Copies of Plan

The Permittee shall comply with the requirements of 40 CFR 264.53.

II.G.3. Amendments to Plan

The Permittee shall review and immediately amend, if necessary, the Contingency Plan, as required by 40 CFR 264.54.

II.G.4. Emergency Coordinator

The Permittee shall comply with the requirements of 40 CFR 264.52(d) and 40 CFR 264.55.

II.G.5. Emergency Procedures

The Permittee shall comply with the requirements of 40 CFR 264.56 including the record keeping and reporting requirements specified in Permit Condition II.H.2.a.iv.

II.H. RECORD KEEPING AND REPORTING

II.H.1. Notification, Certification, and Recordkeeping Requirements

In addition to the record keeping and reporting requirements specified elsewhere in this Permit, the Permittee shall comply with all the applicable notification, certification, and record keeping requirements described in 40 CFR 264.73.

II.H.2. Operating Record

The Permittee shall maintain a written operating record at the facility, consisting of records kept for the lengths of time specified below. The record can be a compilation of various documents. The operating record shall include, but not be limited to, the information listed below.

- a. The following records shall be maintained until closure is complete and certified:
 - i. A current map showing the location of hazardous waste management units and non-regulated units

within the facility;

- ii. A map showing all locations of past hazardous waste management units if different from present locations;
- iii. Pursuant to 40 CFR 264.73, a description and the quantity of each hazardous waste received, and the method(s) and date(s) of its treatment, storage, or disposal at the facility;
- iv. The time, date, and details of any incident that requires implementation of the Contingency Plan, including copies of all reports prepared pursuant to 40 CFR 264.56(i)(3) and Permit Condition I.D.II.c;
- v. Records of spills and releases;
- vi. Written reports and records of verbal notification to the Director and the Administrator to address releases, fires, and explosions;
- vii. All reports of noncompliance pursuant to Permit Condition I.D.12;
- viii. All submittals prepared pursuant to Permit Condition I.D.13;
- ix. Records and results of waste analyses required by 40 CFR 264.73(b)(3), which shall include at a minimum:
 - A. The date(s), exact place, and times of sampling or measurements;
 - B. The name of the individual(s) who performed the sampling or measurements;
 - C. The date(s) analyses were performed, demonstrating that EPA SW-846 holding times were satisfied;
 - D. The name(s) of the individual(s) who performed the analyses;
 - E. The analytical techniques or method used;

- F. The analytical results;
 - G. The *QA/QC* summary; and
 - H. The type(s) and model number(s) of the equipment used for analysis.
- x. All waste determinations, waste profiles, and waste feed composition determinations made pursuant to the Waste Analysis Plan, Attachment II.BB.
 - xi. Training records of current facility personnel;
 - xii. Certifications pursuant to 40 CFR 264.73 (Waste Minimization Plan);
 - xiii. The notice and certification required by a generator under 40 CFR 264.73 and 268.7 (Land Disposal Restrictions); and
 - xiv. Records of facility constructions pursuant to Permit Condition I.D.10.
- b. The following records shall be maintained for a minimum of 5 years. This time period may be extended by the Department in the event of enforcement action or notification by the Department that an investigation is ongoing.
 - i. Facility operation and maintenance records and reports prepared pursuant to this Permit; and
 - ii. Progress reports and any required notifications prepared pursuant to this Permit.
 - c. The following records shall be maintained for a minimum of 3 years. This time period may be extended by the Department in the event of enforcement action or notification by the Department that an investigation is ongoing.
 - i. Generator biennial reports submitted in compliance with 40 CFR 262.41;
 - ii. Facility biennial reports submitted in compliance with 40

CFR 264.75;

- iii. Training records of former facility personnel;
- iv. Records of all monitoring information pursuant to Permit Condition I.E.3; and
- v. Records of all inspections, pursuant to 40 CFR 264.15, which shall include at a minimum:
 - A. The date and time of the inspection;
 - B. The name of the person performing the inspection;
 - C. A notation of the observations made; and
 - D. The date and nature of any repairs or remedial actions.
- d. Current copies of the following documents as amended, revised, and modified shall be maintained at the facility until closure is complete and certified:
 - i. Waste Analysis Plan;
 - ii. Personnel Training Plan;
 - iii. Contingency Plan;
 - iv. Documentation of arrangements made with local authorities pursuant to 40 CFR 264;
 - v. Closure Plan; and
 - vi. Documentation pertaining to the storage of ignitable and reactive wastes required pursuant to 40 CFR 264.17.

II.I. CLOSURE

II.I.1. Performance Standard

The Permittee shall close the permitted storage areas as required by 40 CFR 264.111 and 264.178, and in accordance with the Closure Plan, Attachment II.GG.

II.I.2. Amendments to Closure Plan

The Permittee shall amend the Closure Plan in accordance with 40 CFR 264.112(c) whenever necessary.

II.I.3. Notification of Closure

The Permittee shall notify the Director at least 45 days prior to the date he expects to begin closure as required by 40 CFR 264.112(d).

II.I.4. Time Allowed for Closure

After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the permitted areas all hazardous waste and shall complete closure activities in accordance with the schedules specified in the Closure Plan, Attachment II.GG and 40 CFR 264.113.

II.I.5. Disposal or Decontamination of Equipment

The Permittee shall decontaminate and/or dispose of all facility equipment as required by 40 CFR 264.114 and the Closure Plan, Attachment II.GG.

II.I.6. Certification of Closure

The Permittee shall certify that the permitted storage areas have been closed in accordance with the specifications in the Closure Plan, Attachment II.GG, as required by 40 CFR 264.115.

LIST OF ATTACHMENTS

The following Attachments are incorporated, in their entirety, by reference into this Permit. These incorporated Attachments are enforceable conditions of this Permit. Some of the documents contain excerpts from the Permittee's Hazardous Waste Permit Application. The Department has, as deemed necessary, modified specific language excerpted from the Permit application. Additional modifications are prescribed in the Permit Conditions (Modules I through IV), and thereby supersede the language of the Attachments. Facility operations shall be in accordance with the contents of the Attachments and this Permit.

Attachment AA	Facility Description
Attachment BB	Waste Analysis Plan
Attachment CC	Inspection Schedule
Attachment DD	Security Provisions and Procedures
Attachment EE	Personnel Training
Attachment FF	Contingency Plan
Attachment GG	Closure Plan

MODULE II
ATTACHMENT II.AA
FACILITY DESCRIPTION

MODULE II – ATTACHMENT II.AA – FACILITY DESCRIPTION

II.AA.1.

Facility

Naval Surface Warfare Center Dahlgren Division (NSWCDD), is a tenant command at the Naval Support Facility Dahlgren (NSFDL) located in the Northern Neck Region of Virginia along the Potomac River, in King George County. NSFDL is 28 miles east of Fredericksburg, Virginia and 53 miles south of Washington, DC. NSFDL is bound on the north by US Highway 301 and on the east by the Potomac River. Primary access to NSFDL is via US Highway 301, VA Route 206, and VA Route 614. Controlled access through perimeter fencing to the Mainside is via two entrances. Upper Machodoc Creek flows in a general west-to-east direction through NSFDL, dividing it into two principal areas: Mainside, consisting of 2,673 acres and the Explosive Experimental Area (EEA) consisting of 1,631 acres, Mainside is divided by Gambo Creek, which flows in a general north-to-south direction. The EEA, located at Tetotum Flats, is more commonly referred to as Pumpkin Neck.

NSWCDD serves as one of the principal research, development, testing, and evaluation (RDT&E) centers for US Navy surface ship weapons, ordnance, mines, and strategic systems. NSWCDD generates excess ordnance and other energetic materials during the course of RDT&E activities. These items either have no further military use or have been stressed to a point where they are no longer safe for transport. NSWCDD also accepts unserviceable, obsolete, and/or waste military munitions from other Department of Defense (DoD) facilities for treatment. Because these materials exhibit the characteristic of reactivity, they must be managed as explosive hazardous waste (EHW). This EHW is thermally treated using elevated temperatures as the primary means to change their chemical and physical character. The thermal treatment units used for this purpose include an Open Burning (OB) unit and Open Detonation (OD) unit located at the EEA Churchill Range.

Non-liquid EHW may be stored in Structures 353C, 951, and 952 (permitted magazines) and units that have been declared conditionally exempt (CE) storage areas under the Military Munitions Rule (MMR). As aforementioned, EHW stored may be generated offsite by other DoD or local community activities or onsite through RDT&E or other activities. EHW from onsite Installation Restoration (IR) cleanup activities may also require storage until thermally treated.

II.AA.2. General Requirements

This Section includes topographic maps, which shows 1,000 feet around Structures 353C, 951 and 952, at a scale of 1 inch equal to not more than 200 feet. The map includes: contours sufficient to show surface water flow, map date, 100-year floodplain area, surface waters, map orientation and legal boundaries of the facility. The map also indicates location of access control, buildings, storm and sanitary sewers, loading and unloading areas, and existing hazardous waste/solid waste management units within 1,000 feet of Structures 353C, 951 and 952.

According to the Naval Support Facility Dahlgren Master Plan, land use for the area surrounding and including Structures 353C, 951 and 952 is Operations-Hazardous Areas, which includes explosives storage, flight operations, etc.

II.AA.3. Traffic Information

The primary routes serving NSFDL are U.S. Highway 301, Virginia Route 206, and County Route 614. The Main Gate is located on Virginia Route 206. A second gate B is located off Virginia Route 614. Access to EEA is through the Main Gate located off Virginia Route 618 and is open during normal working hours.

Figure II.AA-1 depicts the principal roadways on NSFDL Mainside. The primary roads leading to the storage units are paved; the secondary roads, that provide access to the units and between the units, are either paved or gravel. The paved roads are capable of handling vehicles used to move EHW to and from the storage units. The load-bearing capacity of the gravel roads has not been rated; however, long-term previous use indicates that these roads are capable of withstanding heavy-load traffic over a long period of time.

The speed limit at NSFDL is 25 mph unless otherwise posted. Intersections are equipped with the appropriate traffic signs.

Figure II.AA-1
Topographic Map of Structures 353C, 951 and 952

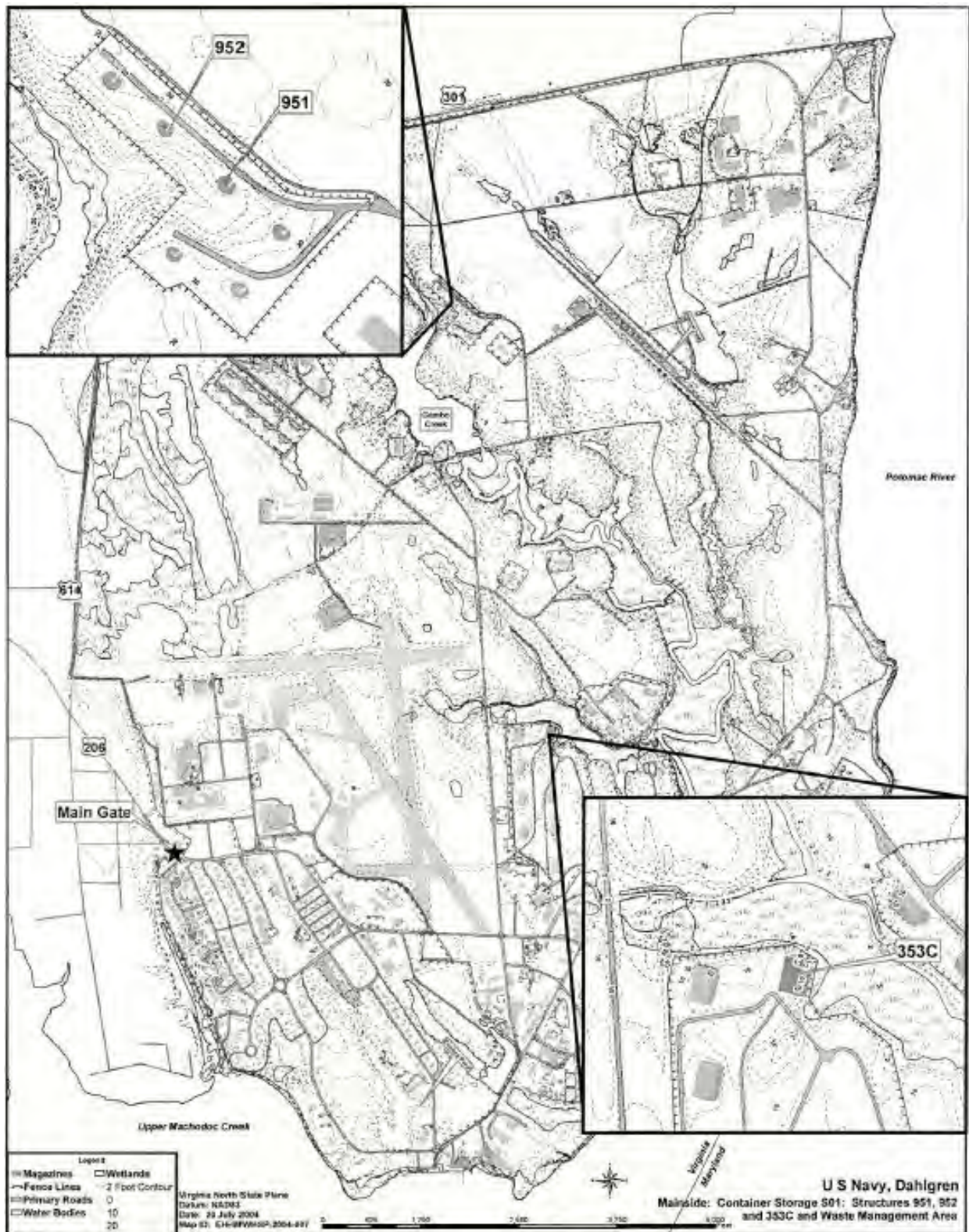


Exhibit II.AA-1
Fence and Lockable Gate - Structures 951 & 952

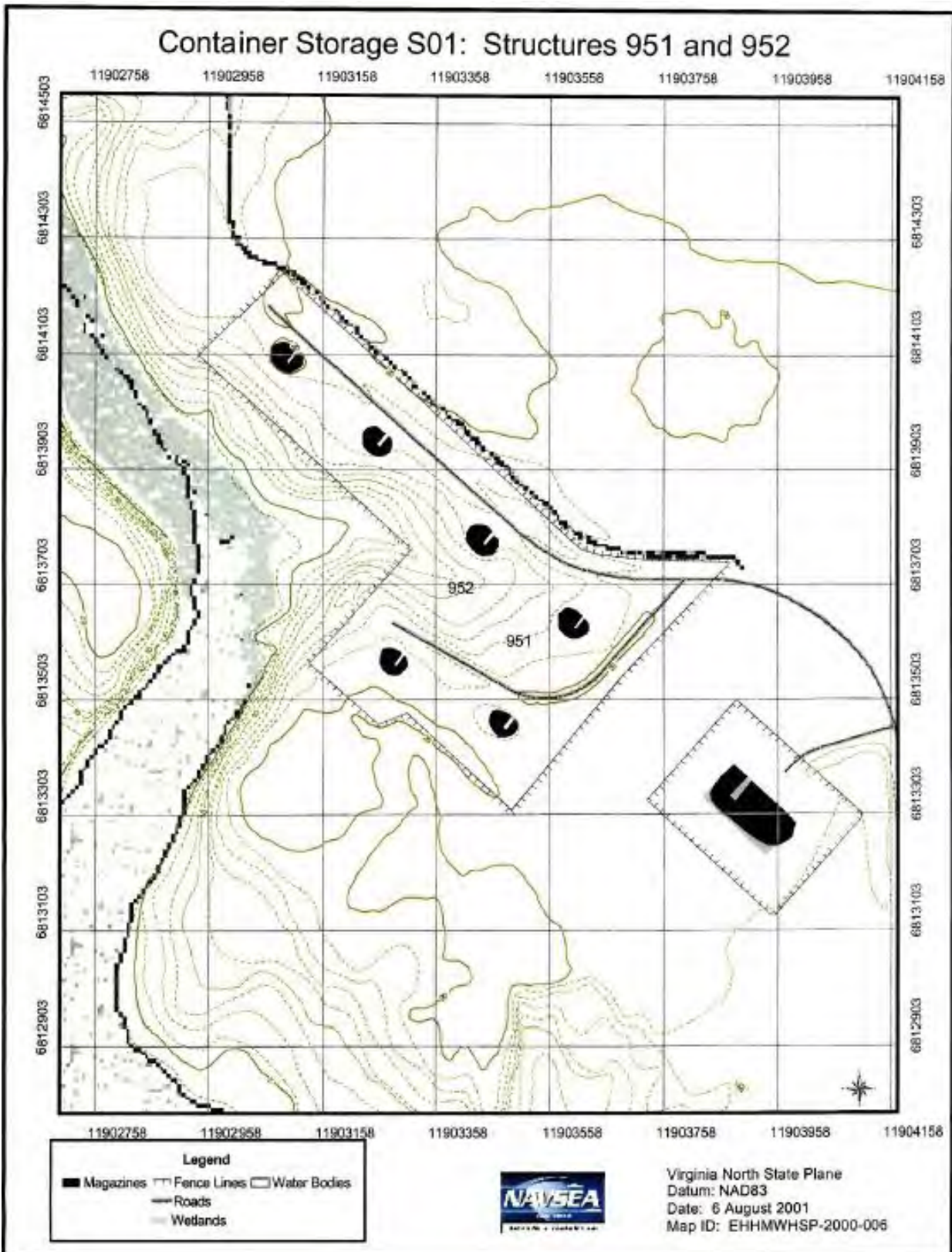


Exhibit II.AA-2
Buffer Zone around 951 and 952

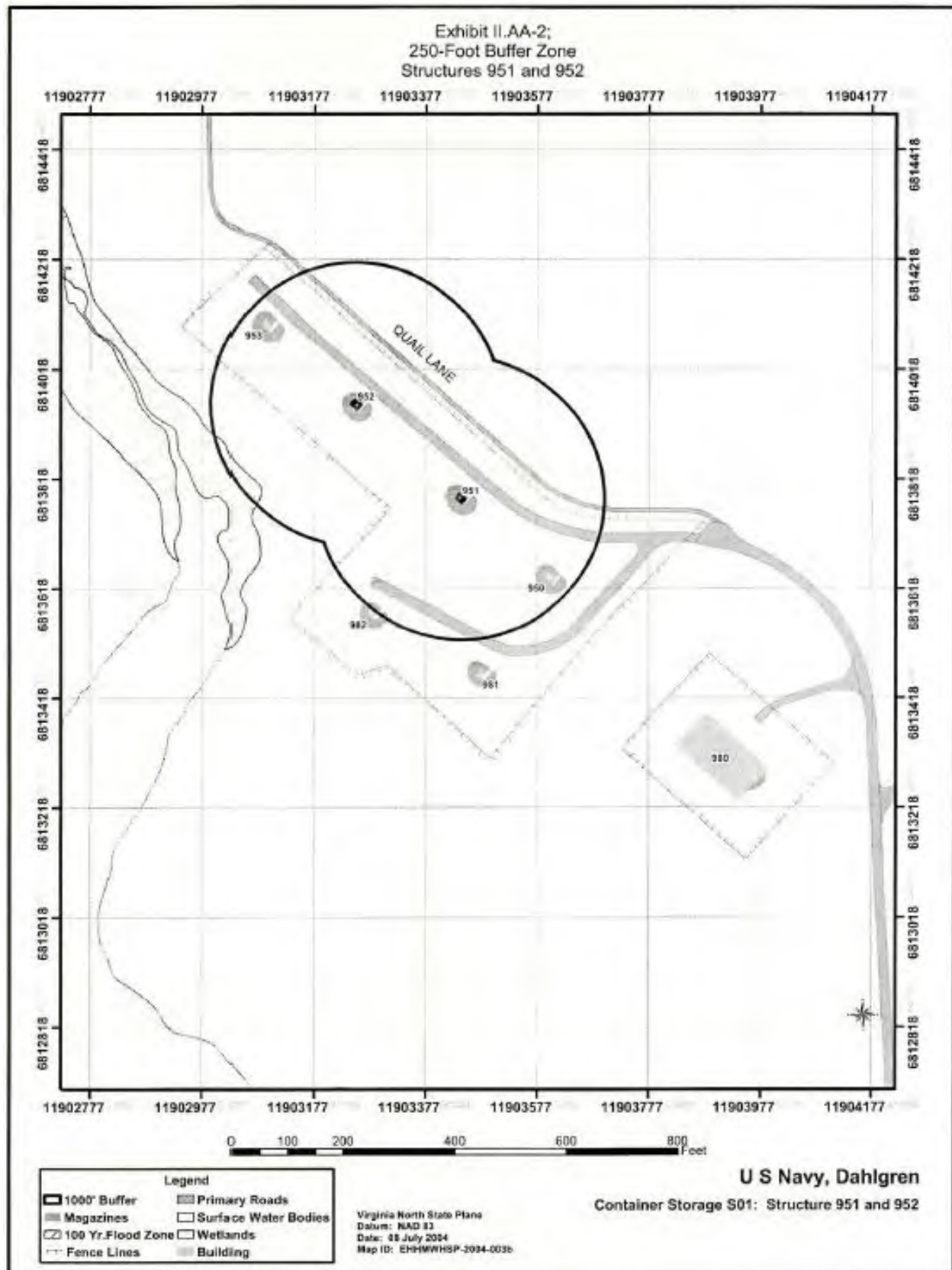
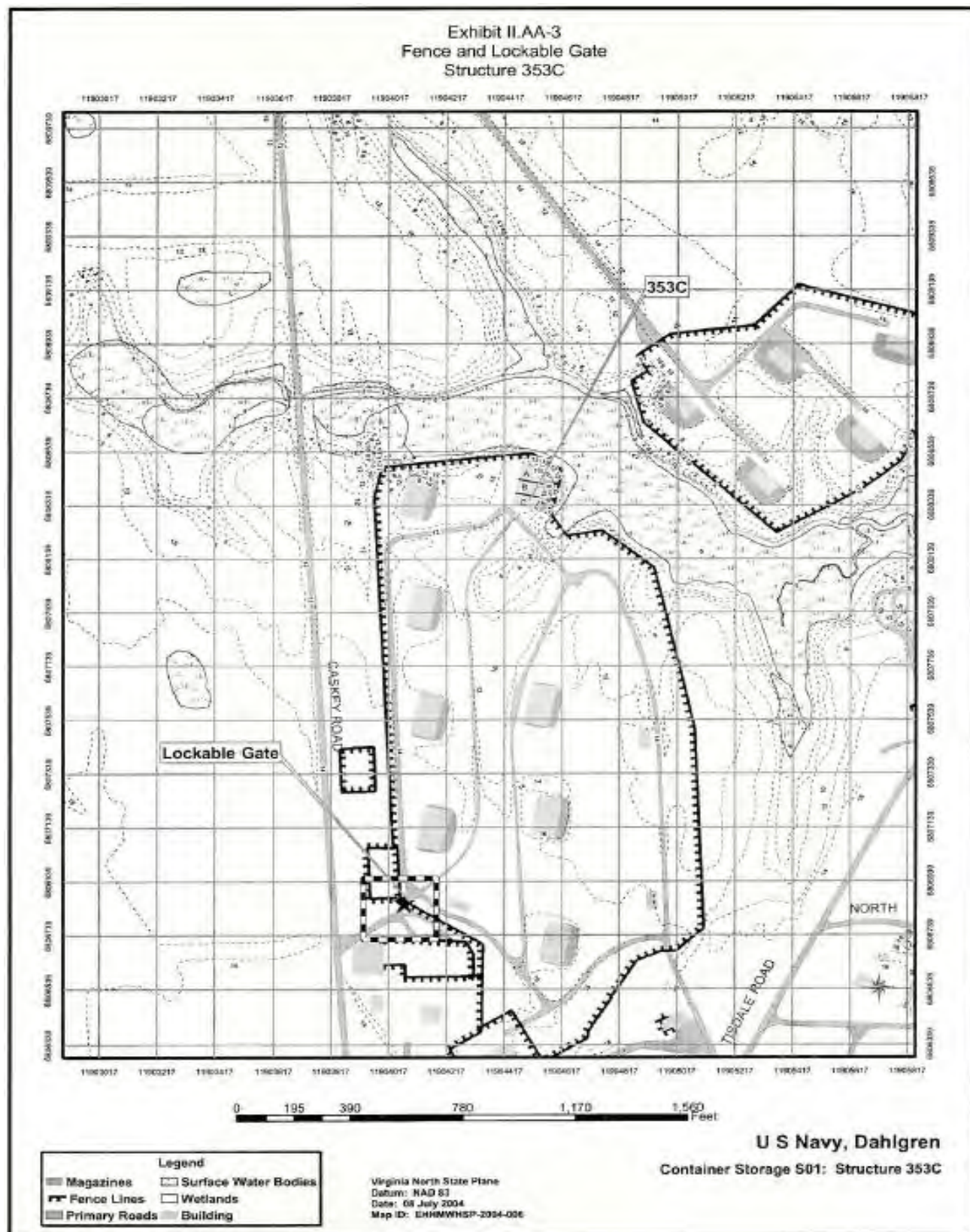
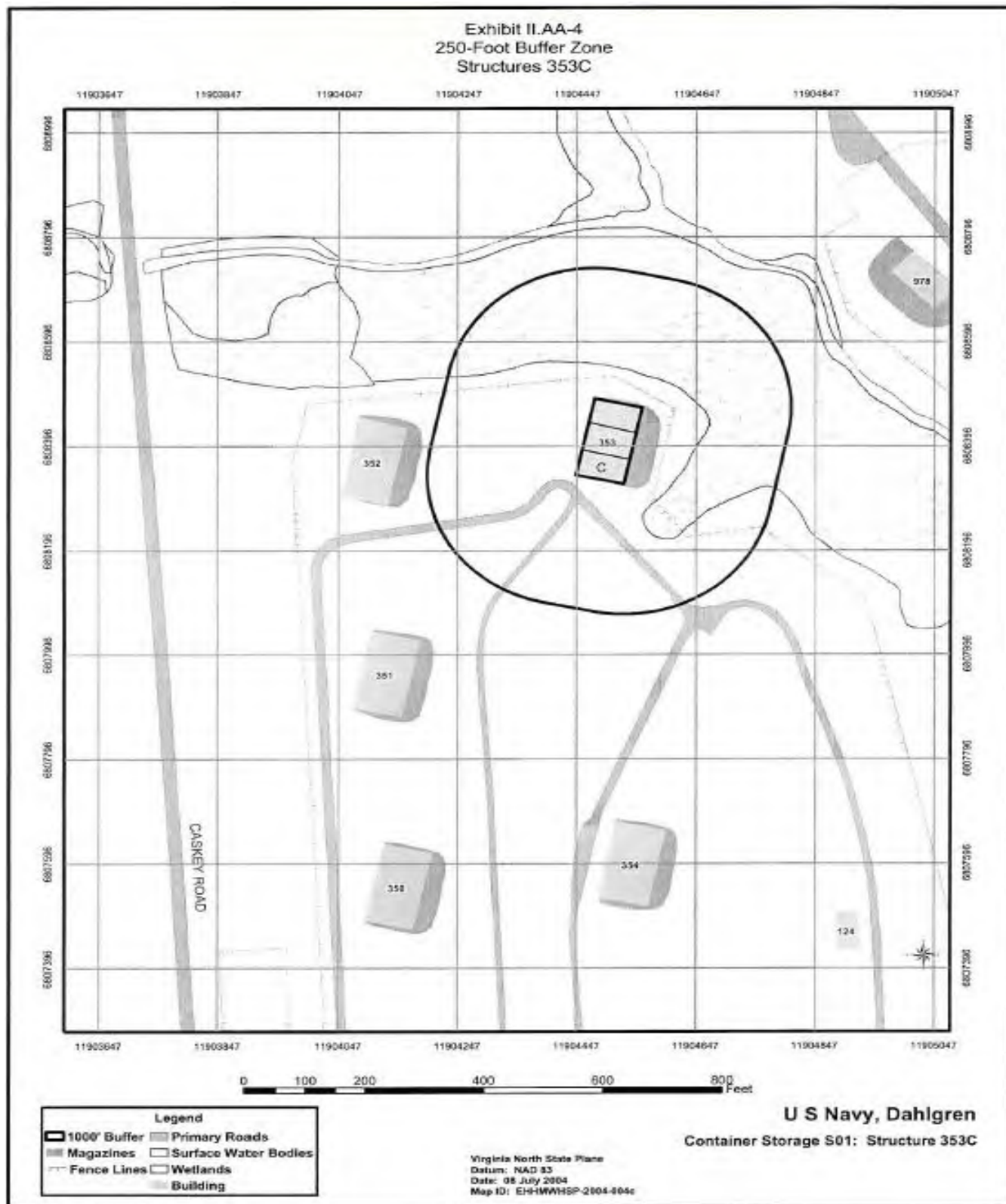


Exhibit II.AA-3 Fence and Lockable Gate Structure 353C



**Exhibit II.AA-4
250-Foot Buffer Zone-Structure 353C**



MODULE II

ATTACHMENT II.BB

WASTE ANALYSIS PLAN

MODULE II-ATTACHMENT II.BB - WASTE ANALYSIS PLAN

II.BB.1. Chemical and Physical Analyses

The Naval Surface Warfare Center Dahlgren Division (NSWCDD) is a research, development, testing and evaluation (RDT&E) laboratory, which may generate virtually any form of ordnance waste at any given time, and many types of explosive-ordnance-related wastes in the course of experimental activities.

NSWCDD also receives ordnance wastes generated by other military installations or from local authorities that have discovered items in the public sector. Any of these ordnance wastes may be stored in Structures 353C, 951, and 952 while awaiting on-site thermal treatment by open burning or open detonation (OB/OD). Waste munitions and energetic materials that are stored at Structures 353C, 951, and 952 and/or are treated at the OB/OD exhibit the characteristics of reactivity as defined in 40 CFR 261.23(6) and/or (8). The wastes are either physically intact waste munitions, explosive components, or pure energetic materials (e.g., waste propellant). The waste munitions are typically ordnance items or components that consist of an explosive (or propellant) wholly contained in metal, non-metal (plastic), or composite casings. Some of these items are deteriorated or have been damaged. Sampling methods would require the disassembly of the item, which is not feasible. Also, the energetic materials are capable of detonation or explosive reaction when subjected to a strong initiating source or when heated under confinement. The personnel health and safety risks associated with these activities would not justify sampling and analysis of the waste stream prior to treatment.

Therefore, no laboratory analyses will be conducted on either on-site or off-site generated waste or identifiable or unidentifiable waste explosive items that are stored in Structures 353C, 951, and 952. Most times information will be available for ordnance items. However, there may be times when items are not readily identifiable. If adequate characterization information is not available, NSWCDD munition experts use their knowledge and standard reference sources to identify the type of energetic item and assume the highest hazard in accordance with NAVSEA OP5, "Ammunition and Explosive Ashore; Safety Regulations for Handling, Storing, Production, Renovation and Shipping".

The Explosive Hazardous waste (EHW) stored at Structures 353C, 951, and 952 may have any of the following waste codes: D001, D003, D005, D006, D007, D008, D009, D011, D030, and D036.

II.BB.1.a. Containerized Wastes

The EHW stored in Structures 353C, 951, and 952 is managed in accordance with the Department of Transportation (DOT) requirements to ensure the containers and wastes are compatible. Wastes from on-site and off-site sources are stored in Structures 353C, 951, and 952, and are solids that do not require secondary containment.

49 CFR 173.62 provides packing instructions for each type of explosives through an Explosive Table and an Explosive Packing Instruction Table.

NAVSEA OP5, “Ammunition and Explosive Ashore; Safety Regulations for Handling Storing, Production, Renovation and Shipping”, states that ammunition or ammunition components, shall not be stored outside of their shipping containers with a few exceptions that can be found in paragraphs 11-1.5 and 11-7. Examples of these exceptions include large rocket or missile motors that are not transported in shipping containers or ammunition that is configured for ready issue (i.e., aircraft ordnance or security ammunition).

II.BB.2. Waste Analysis Plan

NSWCDD is a research, development, testing and evaluation (RDT&E) laboratory, which may generate virtually any form of ordnance waste at any given time. Ordnance wastes are stored in Structures 353C, 951, and 952 while awaiting on-site treatment by Open Burning or Open Detonation (OB/OD).

Waste munitions and energetic materials that are stored at Structures 353C, 951 and 952 and/or are treated at the OB/OD exhibit the characteristic of reactivity as defined in 40 CFR 261.23 (6) and/or (8). The wastes are physically intact waste munitions, explosive components, or pure energetic materials (e.g., waste propellant). The waste munitions are typically ordnance items or components that consist of an explosive (or propellant) wholly contained in metal, non-metallic (plastic), or composite casings. Some of these items are deteriorated or have been damaged. Sampling methods would require the disassembly of the item, which is not feasible. Also, the energetic materials are capable of detonation or explosive reaction when subjected to a strong initiating source or when heated under confinement. The personnel health and safety risks associated with these activities would not justify sampling and analysis of the waste stream prior to treatment.

Because of safety concerns, laboratory analyses will not be conducted on waste explosives items to be stored in Structures 353C, 951, and 952. Under

most instances, ordnance is readily identifiable. For such ordnance, the Permittee will have access to all information necessary for safe and proper management. However, it is expected that the Permittee may need to treat unidentifiable ordnance under emergency conditions. If a particular ordnance item is unidentifiable, or if information is not available, then that item will not be sampled and analyzed because of safety concerns. Such items will be treated by OB/OD. It is expected that NSWCDD will need to treat unidentifiable ordnance under emergency conditions, because most ordnance is readily identifiable. For the above reasons, sampling and laboratory analysis of waste ordnance and munitions prior to storage will not be undertaken.

Prior to treatment or storage of hazardous waste, the Permittee receives a waste profile for all waste received from off-site only. Each waste profile will contain, at a minimum, all information specified on the example profile sheet provided in Exhibit II.BB-1. The Permittee will maintain in the facility operating record the waste profile of every waste stream managed at the facility. Waste profiles will be maintained in the operating record until final closure of the facility is complete and certified.

II.BB.2.a. Parameters and Rationale

NSWCDD munition experts use their knowledge and standard reference sources to identify the types of energetic item and assume the highest hazard in accordance with NAVSEA OP5, *Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation and Shipping*". Process knowledge and munition specifications are used to obtain the necessary chemical and physical data for the safe storage of explosive materials and/or EHW in Structures 353C, 951, and 952.

NSWCDD does not store any wastes at Structures 353C, 951, and 952 unless adequate chemical and physical information is available to safely store the waste. It would be extremely rare for situations to occur where process knowledge is unavailable to adequately characterize explosive materials. If adequate characterization information is not available, NSWCDD munition experts will use their knowledge and standard reference sources to identify the type of energetic item and assume the highest hazard.

II.BB.2.b. Test Methods

Reactive hazardous wastes are not tested prior to storage in Structures 353C, 951, and 952 because of safety concerns. The physical and chemical characteristics of the reactive hazardous wastes will be determined prior to storage by process knowledge and munition specifications.

II.BB.2.c. Sampling Methods

Process knowledge and munition specifications are used to obtain chemical and physical data for the storage of explosive materials and/or EHW in Structures 353C, 951, and 952. Therefore, no sampling procedures are necessary.

II.BB.2.d. Frequency of Analyses

No laboratory analyses will be conducted on waste explosives items to be stored in Structures 353C, 951 and 952. Process knowledge and munition specifications will be used to obtain chemical and physical data for the storage of explosive materials and/or EHW in Structures 353C, 951, and 952.

II.BB.2.e. Additional Requirements for Wastes Generated Off-Site

Off-site wastes, which are accepted for storage at Structures 353C, 951, and 952, may originate at other DoD facilities, other federal facilities, or from local authorities who have discovered ordnance items in the public sector. NSWCD will inform the off-site generator in writing that Dahlgren has the appropriate permits and will accept the waste. NSWCD will maintain a copy of this written notice as part of the operating record.

Wastes received from off-site will be visually inspected to ensure that they are properly manifested, accompanied by a profile sheet, and permitted for storage in Structures 353C, 951, and 952. Off-site generators prepare and submit an Explosive Waste Profile Sheet (see Exhibit II.BB-1) to NSWCD. If an EHW does not match the manifest description or the waste profile sheet, and the discrepancy cannot be resolved during receipt, the waste will be returned to the generator.

If it is determined that NSWCD has the appropriate permits to store the waste, the waste will be stored in either Structures 353C, 951, or 952 in accordance with the requirements of this permit. If NSWCD does not have the appropriate permits to store the waste, the waste will be returned to the original generator or immediately taken to the range and treated.

II.BB.2.f. Additional Requirements for Ignitable, Reactive or Incompatible Wastes

NSWCD stores EHW in Structures 353C, 951, and 952 in accordance with *NAVSEA OP5, Volume 1, Revision 7, Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation and Shipping, NAVSEA SW020-AC-SAF-010/020/030*, and/or

the *Navy Military Munitions Rule Implementation Policy*. These explosive safety documents include mandatory management practices for ordnance items (for example, limiting the amount of explosives stored in a particular magazine based on net explosive weight and hazard classification of those items, and the explosive limit for the magazine) at Navy installations.

Exhibit II-BB-1

EXPLOSIVE WASTE PROFILE SHEET

Section 1					
Generator Name and Address:		Waste Profile Number:		Generator EPA ID Number:	
		Generator Technical POC:			
Name of Waste:		POC Phone:		POC Code:	
Compound Acronym:		Nomenclature:		Process Generating Waste:	
				Waste Codes:	

Section 2					
Does the waste contain free liquids? <input type="checkbox"/> Yes <input type="checkbox"/> No Per the paint filter test (SW846 met 9095)? <input type="checkbox"/> Yes <input type="checkbox"/> No					
Is this waste an experimental formulation? <input type="checkbox"/> Yes <input type="checkbox"/> No					
This waste is classified as:					
<input type="checkbox"/> Ordnance/Ammunition <input type="checkbox"/> Retrograde Explosives <input type="checkbox"/> Initiators/Fuses <input type="checkbox"/> Other: _____					
Is this waste wet packed for transportation? <input type="checkbox"/> Yes <input type="checkbox"/> No					
Wet pack solvent composition:					
If the wet pack solvent is halogenated + F002, list here: _____					
If the wet pack solvent is non-halogenated + F003-F006, list here: _____					
What %, by volume, is the wet pack solvent: _____					
Section 3					
MATERIAL CHARACTERIZATION					
Layering:		Physical State:		Color:	Flash Point: (°F)
<input type="checkbox"/> Multi-layered <input type="checkbox"/> Bi-layered <input type="checkbox"/> Single Phase		<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Free Liquid <input type="checkbox"/> Semi-Solid <input type="checkbox"/> Other: _____			
Section 4					
CHEMICAL COMPOSITION					
Heavy Metals (%):					
Arsenic:	Barium:	Cadmium:	Chromium:	Lead:	Mercury:
Silver:	Copper:	Nickel:	Chromium VI:	Zinc:	Other: _____
Other Components (%):					
Cyanides:	Sulfides:	PCBs:	Volatile Organics:	Total Halogens:	Phenolics: _____
Section 5					
HAZARDOUS CHARACTERISTICS					
<input type="checkbox"/> Reactive <input type="checkbox"/> Etiological <input type="checkbox"/> Water Reactive <input type="checkbox"/> Radioactive <input type="checkbox"/> Other: _____					
<input type="checkbox"/> Explosive <input type="checkbox"/> Pyrophoric <input type="checkbox"/> Shock Sensitive <input type="checkbox"/> Toxicity Characteristic					
Section 6				Section 7	
WASTE COMPOSITION				Accepted by TSDF	
Component	Concentration	Comment		<input type="checkbox"/> Yes <input type="checkbox"/> No	
				Accept/Reject Date: _____	
				Accept Initials _____	
				Rejected Explanation: _____	
Total Concentration:					
Section 8					
I, _____, HEREBY CERTIFY THAT ALL INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS IS COMPLETE AND ACCURATE. ALL KNOWN OR SUSPECTED HAZARDS HAVE BEEN DISCLOSED.					
Signature: _____				Date: _____	

EXPLOSIVE WASTE PROFILE SHEET INSTRUCTIONS

This form is provided by NSWCDD and is available in electronic format (Microsoft Word).
Copies are available by calling DSN 249-0933 or Commercial (540) 653-0933.

SECTION 1

Generator name and address:	Fill in appropriate generator name and address
Waste profile number:	Number as shown on waste
Generator EPA ID number:	Fill in appropriate EPA Identification Number
Generator Technical POC:	Person with most knowledge of this particular waste
POC Code:	Work code for Generator Technical POC
Compound Acronym:	Common acronym from NSWC-MP-88-116 for high-energy compounds. If not found in NSWC-MP-88-116 provide the information listed in NSWC-MP-88-116 and attach to the profile sheet.
Nomenclature:	Additional description (i.e., MK 82 bomb, chem wipes, etc.)
Process Generating Waste:	Specific process that generated the waste.
Waste Codes:	Drop value list provided: D001, D003, D005, D007, D008, D009, D011, D030, D036, P009, P042, P081, P112

SECTION 2

Free liquids	Does waste contain free liquids as defined by the paint filter test? This test is required only when the generator is unsure as to the presence of free liquids. If waste is a solid and paint test is not required, check 'no'.
Experimental Formulation	Answer 'yes' or 'no'.
Waste Classification	Select the classification, identify 'other'.
Wet Pack	Answer 'yes' or 'no'.
Wet Pack Solvent Composition	Identify the solvent composition if the waste is wet packed.
Solvent – F002	Drop value list provided: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trifluoroethane, orthodichlorobenzene, trichlorofluoromethane, 1,1,2-trichloroethane
Solvent – F003 thru F005	Drop value list provided: F003: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methylisobutyl ketone, n-butyl alcohol, cyclohexanone, methanol Drop value list provided: F004: cresoste, cresylic acid, nitrobenzene Drop value list provided: F005: methylethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, 2-nitropropane
Volume	Numerical value

SECTION 3

Layering

Select one

Color, Flash point, etc.

Fill in each box

Physical State

Select one, if 'other' is selected, define (liquid is visual, free liquid is per paint filter test)

SECTION 4

Heavy Metals

Select Totals or TCLP and identify presence of each by filling in ppm concentrations

SECTION 5

Hazardous Characteristics

Select one or more as per chemical composition. If 'other' is selected, define.

SECTION 6

List each chemical component and its concentration in the waste. Comment as required.

SECTION 7

To be completed by the Treatment, Storage, Disposal Facility (NSWCDD Shellhouse)

SECTION 8

I, PRINT NAME, HEREBY... Sign on signature line

MODULE II
ATTACHMENT II.CC
INSPECTION SCHEDULE

MODULE II-ATTACHMENT II.CC-INSPECTION SCHEDULE

II.CC.1. General Inspection Requirements

The Permittee regularly conducts inspections of the Structures 353C, 951, and 952 to detect and correct equipment malfunctions, structural deterioration, operator errors, and discharges that could cause or lead to the release of EHW constituents and adversely affect the environment or threaten human health. The Permittee conducts inspection of Structures 353C, 951, and 952 upon entry or weekly if explosive materials and/or EHW are present. No inspections will be conducted when the structures are empty of all explosive materials and/or EHW. The Permittee also conducts regular inspections of safety and emergency equipment kept at other locations on Mainside.

All inspection results will be recorded on an inspection form by the individual who performs the inspection at the time that the inspection is performed. The individual performing the inspection will sign and date each completed inspection form. Examples of inspection forms are included as Exhibit II.CC-1.

Only personnel who have completed appropriate training and are approved for the task shall conduct inspections pursuant to this Inspection Schedule problem.

II.CC.2.a. Types of Problems

Structures 353C, 951, and 952 are inspected per the checklist shown in Exhibit II.CC-1. The checklist shows the type of problems that may be encountered depending on the item being inspected at each unit and the frequency. It is used to schedule the inspections of monitoring equipment, safety and emergency equipment stored at the units, security devices, operating and structural equipment, and communications equipment at the site to prevent, detect, or respond to environmental or human health hazards.

II.CC.2.b. Frequency of Inspection

The inspections are based on regulatory requirements, the rate of possible equipment deterioration, malfunction, or operator error between inspections, and the probability of an environmental or human health incident.

Inspections of the Structures 353C, 951, and 952, will be conducted weekly if waste is present. For as long as the structures remain empty of waste following the last inspection, further inspections need not be performed.

II.CC.2.c. Container Inspection

In effort to minimize exposure to EHW, personnel entering the magazine for the purpose of loading or unloading items will inspect the items set forth in II.CC-1. These inspectors will check for deterioration caused by corrosion, damage, or other factors. Weekly inspection of the containers and EHW storage areas will be conducted when explosive materials and/or EHW are stored in Structures 353C, 951, and 952. No inspections will be conducted when the structures are empty of all explosive materials and/or EHW. The status of the structures and containers will be recorded on Exhibit II.CC-1 or a similar form with copies being maintained in the NSWCDD Safety and Environmental Office.

II.CC.2.d. Safety and Emergency Equipment Inspections

Structures 353C, 951, and 952 do not contain any safety and emergency equipment in accordance with NAVSEA OP5, VOLUME 1, REVISION 7, *Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation and Shipping* and/or NAVSEA SW020-AC-SAF-010/020/030. However, personnel entering the magazine for the purposes of loading or unloading will check each structure for signs of deterioration, damage, or other factors that may hinder emergency response activities.

II.CC.2.e. Emergency Requirement

When entering Structures 353C, 951, and 952, an authorized ordnance person must accompany personnel. A signal flag is raised at the gate entrance indicating activity within the secured area containing Structure 353C, 951, and 952. Telephones are located beside the doors of both Structures 951, and 952. Structure 353C does not have a telephone. Radio communications are limited near Structures 353C, 951, and 952 since some wastes could be detonated with radio frequency energy. Cell phones may be used in place of land line phones outside the fenced magazine area of Structures 353C, 951, and 952.

II.CC.2.f. Internal Communications

Structures 951 and 952 have an alarm system that notifies the Security Division of unauthorized entry into Structures 951 and 952. The alarm system is not capable of providing voice instructions to facility personnel. Structure 353C does not have an alarm system.

II.CC.2.g. External Communications

Telephones are located beside the doors of both Structures 951 and 952. In case of an emergency, personnel are to call 911 and the dispatcher will contact appropriate emergency response personnel.

Radio communications are limited near Structures 353C, 951, and 952 since some wastes could be detonated with radio frequency energy.

II.CC.2.h. Emergency Equipment

Structures 353C, 951 and 952 do not contain any safety and emergency equipment in accordance with *NAVSEA OP5, VOLUME 1, REVISION 7, Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation and Shipping* and/or *NAVSEA SW020-AC-SAF-010/020/030*. However, personnel entering the magazine for the purposes of loading or unloading will check each structure for signs of deterioration, damage, or other factors that may hinder emergency response activities. EHW and HW equipment are located at various locations around NSWCD. Please see Table II.CC-1.

EXHIBIT II.CC-1

INSPECTION LOG

UPON ENTRY INSPECTION SHEET FOR STRUCTURES 951, 952, and 353C*

Inspector's Name _____ Date _____

S = Satisfactory U=Unsatisfactory and requires comment under Action To Be Taken

ITEM	TYPE OF PROBLEM	STATUS		
		951	952	353C
Building				
Concrete floor/walls/ceiling	Cracks, leakage, settling			
Doors	Door not locked, damaged, inoperative			
Vent	Blocked			
Roof, walls, doors	Not preventing entrance of precipitation			
Signs	Missing, loose, illegible			
Containers				
Containers	Loss of integrity, spills, leakage, not closed or sealed, improper labeling			
Pallets (if present)	Damaged			
Storage	Vol of hazwaste exceeds permitted amounts, insufficient aisle space			
Safety & Emergency Equipment				
Telephone	Inoperative			N/A

Actions To Be Taken _____

Date Remedial Actions Completed _____ Completed by (initials) _____

*Inspections will only occur when explosive wastes and/or explosive materials are stored in Structures 951, 952, and 353C. No inspections will be conducted when the structures are empty.

EHW ID NUMBER	EHW ITEM DESCRIPTION AND QUANTITY	START DATE	No. Days of Accumulation	TREATMENT DATE

TABLE II.CC-1

**INCIDENTAL SPILL EQUIPMENT MAINTAINED BY NSW CDD BUILDING
189, ROOM 105 (VAULT)**

Physical Description of Spill Equipment	Capabilities
Latex Gloves	Protect Hands
Work Gloves	Protect Hands
Splash Goggles	Protect Eyes
Safety Glasses	Protect Eyes
Tyvek Suits/Boots	Personnel Protection
Litmus Paper	Identification of pH
Baking Soda	Neutralization of Acid Spills
Stay Dry Absorbent	Absorb Spill
Towels	Absorb Spill
Oil Pillows	Absorb Spill
Oil Snake/Boom	Contain Spill
Wipes	Clean Up Equipment/Small Spills
Plastic Disposal Bags	Collect Material for Disposal
Hazardous and Non-Hazardous Waste Stickers	Identification of Waste
Rope	Secure Containers during Transport
Plastic Sheeting	Cover Spill Area or Debris
5-Gallon Plastic Pails	Collect Material for Disposal
Broom	Sweep Up Spill and Absorbent
Dust Pan	Pick Up Spill and Absorbent
Shovel	Pick Up Spill and Absorbent

MODULE II

ATTACHMENT II.DD

SECURITY PROVISIONS AND PROCEDURES

MODULE II-ATTACHMENT II.DD – SECURITY PROVISIONS AND PROCEDURES

II.DD.1. Access Control

Exhibits II.DD-1 and 3 depict the fence and lockable gate surrounding the hazardous waste storage Structures 353C, 951 and 952. Access to Mainside is controlled via a perimeter fence and two entrances, Main Gate and B Gate. Main Gate is manned 24-hours per day and B Gate is manned when it is open. Access to the individual storage units is described below.

II.DD.2. Security Procedures and Equipment

In addition to the security provisions of fencing, gates and guards, several other features contribute to the safety and security of NSFDL. Guards are equipped with base station or hand-held, two-way radios to immediately report conditions that are out of the ordinary. Most posts are equipped with telephones that are part of the NSFDL telephone network. Finally, vehicles assigned to the security force are equipped with radios for communication with the base station and other stationary posts.

As shown in Exhibits II.DD-2 and 4, Structures 353C, 951 and 952, used to store EHW on Mainside, are surrounded by at least a 250-foot buffer zone and are located more than 50 feet from the NSFDL property line.

II.DD.3. 24-Hour Surveillance System

A staff of trained security guards who primarily monitor entry and exit from Mainside and provide security measures within the facility premises maintains security at NSFDL.

An 8-foot-high chain-link fence borders the entire Mainside land perimeter. An internal security fence described in subsequent paragraphs also protects the EHW storage areas.

A security force augments the security provided by the fences and the gate guards. Vehicular patrols operate randomly 24-hours per day, seven (7) days a week on Mainside. The patrols check the perimeter and buildings of NSFDL to identify unauthorized activity and accidents.

II.DD.4. Barrier

A chain-link fence borders the land perimeter of the Mainside. The fence is 8-feet high and topped with an outrigger of three barbed wire strands. Warning signs are attached approximately every 100 feet.

II.DD.5. Means to Control Entry

The Main Gate is on Virginia Route 206 approximately 2 miles south of US Route 301. The gate is open and guarded 24 hours per day. Armed guards at the Main Gate ensure that all entering traffic displays the required identification.

Two other gates are present on Mainside. B Gate is just south of US Route 301 near the intersections of 301 and Virginia Route 614. B Gate is manned only when open for access. C Gate is locked. No other land vehicle access to Mainside is available.

II.DD.6. Warning Signs

Approximately every 100 feet, the perimeter fence has a sign with the following wording:

**WARNING
RESTRICTED AREA
KEEP OUT
AUTHORIZED PERSONNEL ONLY**

Numerous warning signs are attached to Structures 353C, 951 and 952. The signs are approximately 16-inches square and are mounted at eye level. They read:

**Danger
Unauthorized Personnel
Keep Out**

II.DD.7. Injury to Intruder

An interior fence and lockable gate surrounds the hazardous waste storage Structures 353C, 951 and 952 to prevent unknowing or unauthorized persons or livestock from entering this portion of the facility.

II.DD.8. Emergency Requirement

When entering Structures 353C, 951, and 952, an authorized ordnance person must accompany personnel. A signal flag is raised at the gate entrance indicating activity within the secured area containing Structure 353C, 951, and 952. Telephones are located beside the doors of both

Structures 951, and 952. Structure 353C does not have a telephone. Radio communications are limited near Structures 353C, 951, and 952 since some wastes could be detonated with radio frequency energy.

II.DD.9. Internal Communications

Structures 951 and 952 have an alarm system that notifies the Security Division of unauthorized entry into Structures 951 and 952. The alarm system is not capable of providing voice instructions to facility personnel. Structure 353C does not have an alarm system.

II.DD.10. External Communications

Telephones are located beside the doors of both Structures 951 and 952. In case of an emergency, personnel are to call 911 and the dispatcher will contact appropriate emergency response personnel.

Radio communications are limited near Structures 353C, 951, and 952 since some wastes could be detonated with radio frequency energy.

II.DD.11. Water for Fire Control

The Fire Division will respond in case of fire. However, it is NSFDL policy not to fight explosions or burning explosives fires, unless attempts are being made for rescue. These rescue attempts will be made at the discretion of the Incident Commander (IC). The Fire Department will work with appropriate personnel to determine what measures, if any, are to be implemented.

II.DD.12. Aisle Space Requirement

Aisles approximately 18-inches wide shall be provided so that the individual containers are accessible for inspection. Front wall clearance of 2-feet shall be maintained. A space of at least 6-inches shall be maintained from stacks to the side and rear walls and to the ceiling of the magazine. The bottom layer of the containers shall be raised off the floor by suitable metal dunnage to provide a ventilation space between the bottom of the stack and the floor and to protect the material in the stack from dampness and the unlikely event of water damage. Containers will be arranged so individual containers can be visually inspected.

Due to the construction of the magazines, a very limited number of people can occupy the magazine at one time. Movement of personnel will be limited as the magazines are for storage only. Since it is NSFDL policy not to fight explosions or burning explosives fires, there will not be

movement of fire personnel or fire protection equipment. As liquid explosives or liquid explosive hazardous waste are not stored in the magazines, there is no requirement for spill equipment during an emergency.

Note: Certain explosive items may need to be packed in water due to the possibility of auto-ignition. If this situation should arise, the container would be placed in an overpack container filled with absorbent material.

II.DD.13. Unloading Operations

Personnel in the NSWCDDE Explosive Qualification and Certification program will perform the unloading of EHW. EHW (Class 1 material) shall be handled carefully to prevent shock and friction that may cause an explosion or damage to the material. Handling of EHW shall be minimal to prevent damage and creation of hazardous conditions. Every precaution shall be taken to avoid EHW contact with sand, earth, gravel, and other abrasive or spark-producing substances. EHW shall be handled carefully to avoid obliteration or defacement of the identification markings. All markings shall be made in indelible ink or paint.

During handling of explosive materials and/or EHW, the following tools and operational equipment may be used as approved by NAVSEA *OP5, VOLUME 1, REVISION 7, Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation and Shipping*.

Non- or low-sparking hand tools
Hand transport trucks
Explosive carrier vehicles
Forklifts
Wooden wheel chocks

Handlers of explosive materials and/or EHW must be in the NSWCDDE Explosive Qualification and Certification Program. Only drivers in the NSWCDDE Explosive Qualification and Certification Program may transport EHW and/or explosive materials. Forklift operators who move explosive materials and/or EHW must complete an explosive material handling equipment course.

II.DD.14. Run-off

No liquid explosives or liquid explosive hazardous waste are stored in Structures 353C, 951 and 952. Therefore, there is no opportunity for run-off from hazardous waste areas to other areas of the facility or the environment.

However, certain explosive items may need to be packed in water due to the possibility of auto-ignition. If this situation should arise, the container would be placed in an overpack container filled with absorbent material. The door to Structure 353C is elevated a little more than 3 feet from the ground surface as a loading dock runs across the front of the magazine. Structures 951 and 952 have a 4.5-inch step up to prevent water from running into the magazines.

II.DD.15. Water Supplies

The design and construction of Structures 353C, 951 and 952, along with the fact that no liquid explosives or liquid explosive hazardous waste are stored in these magazines, makes the potential for contamination of water supplies minimal.

Note: Certain explosive items may need to be packed in water due to the possibility of auto-ignition. If this situation should arise, the container would be placed in an overpack container filled with absorbent material.

II.DD.16. Equipment and Power Failure

A power failure can affect the alarm system at Structures 951 and 952. However, the Security Division must still be notified before entry and upon exit of Structures 951 and 952 even if the alarm system is not functioning. If the telephones are not operational, the Security Division will be notified by other means. Structure 353C does not have a telephone or an alarm system.

II.DD.17. Arrangements with Local Authorities

The following organizations have received a copy of our Hazardous Waste Contingency Plan and may assist during time of emergency.

- Naval Support Activity South Potomac,
- Naval Support Facility Dahlgren,
- King George County Department of Emergency Services,
- Mary Washington Hospital, and
- University of Maryland Charles Regional Medical Center

Exhibit II.DD-1 Fence and Lockable Gate for Structures 951 and 952

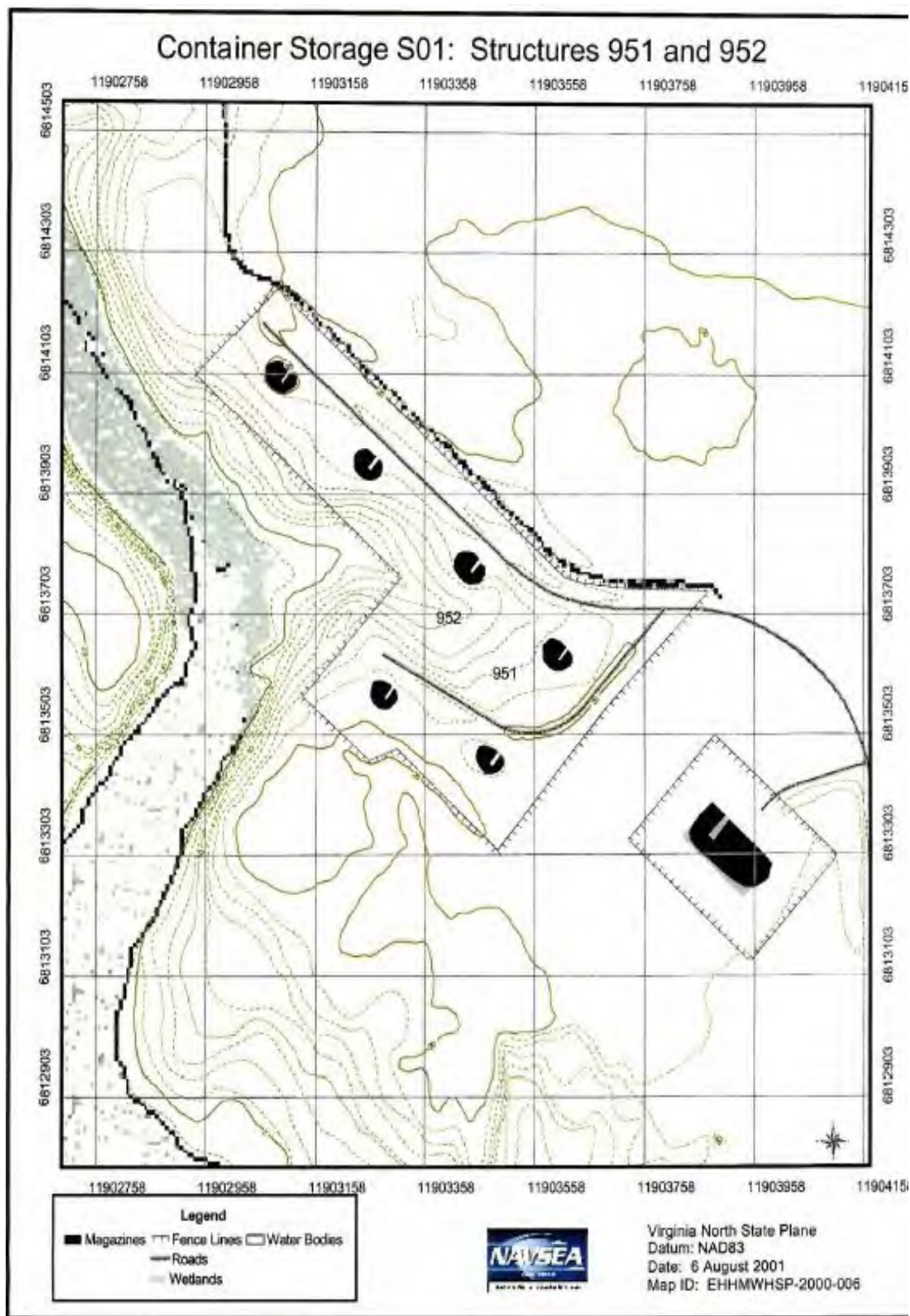


Exhibit II.DD-2 250Foot Buffer Zone –Structures 951 and 952

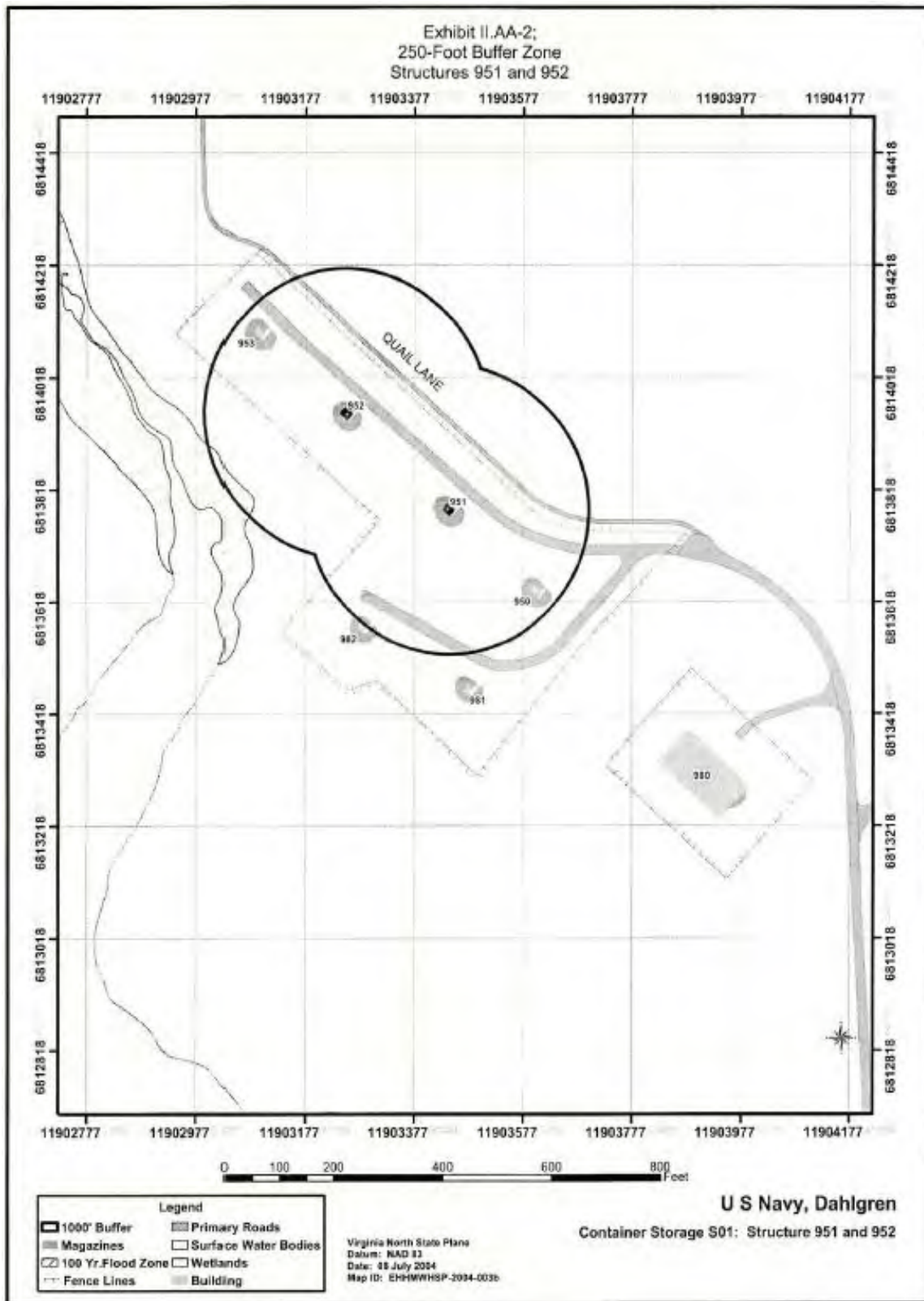


Exhibit II.DD-3 Fence and Lockable Gate for Structure 353C

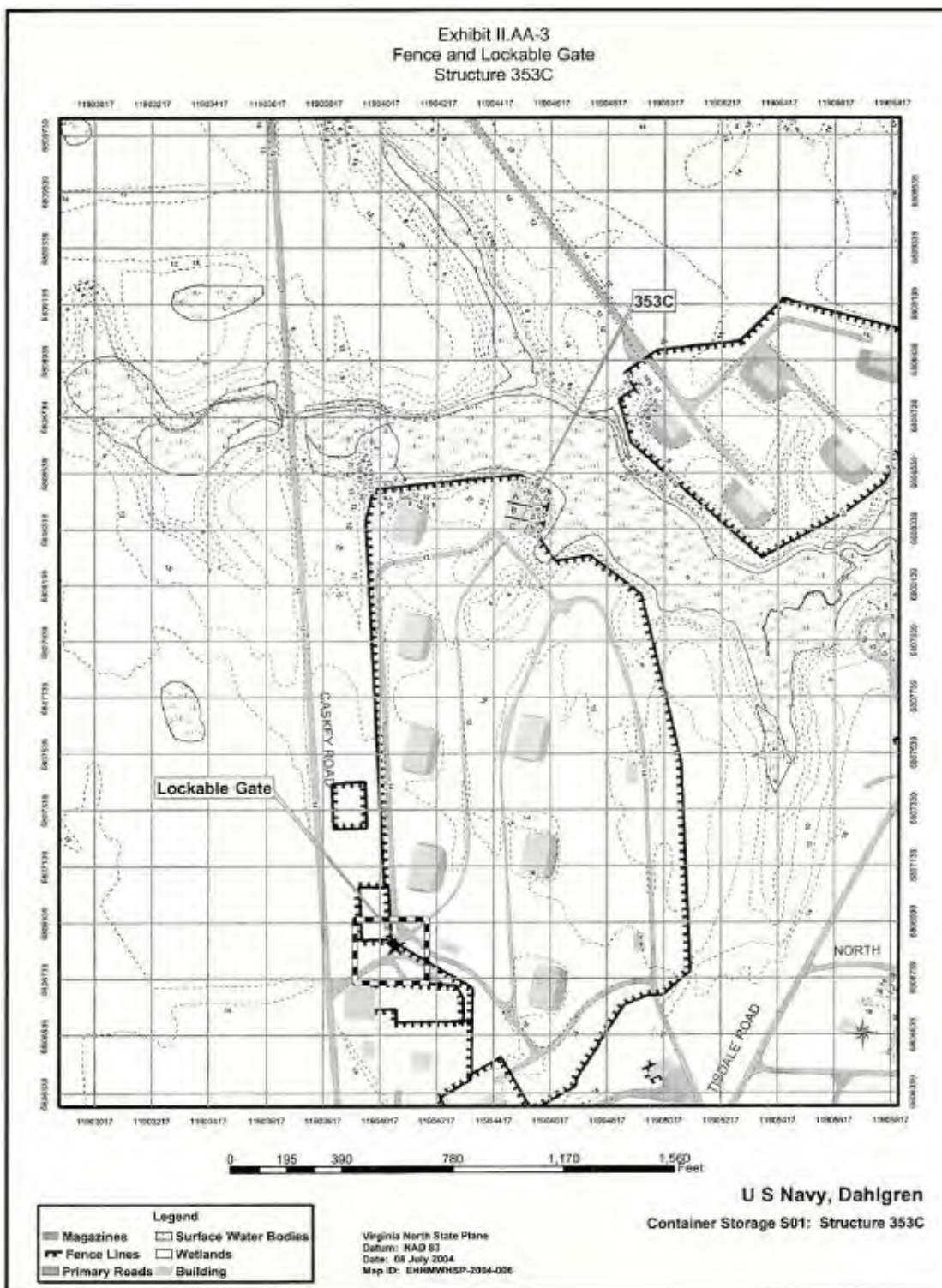
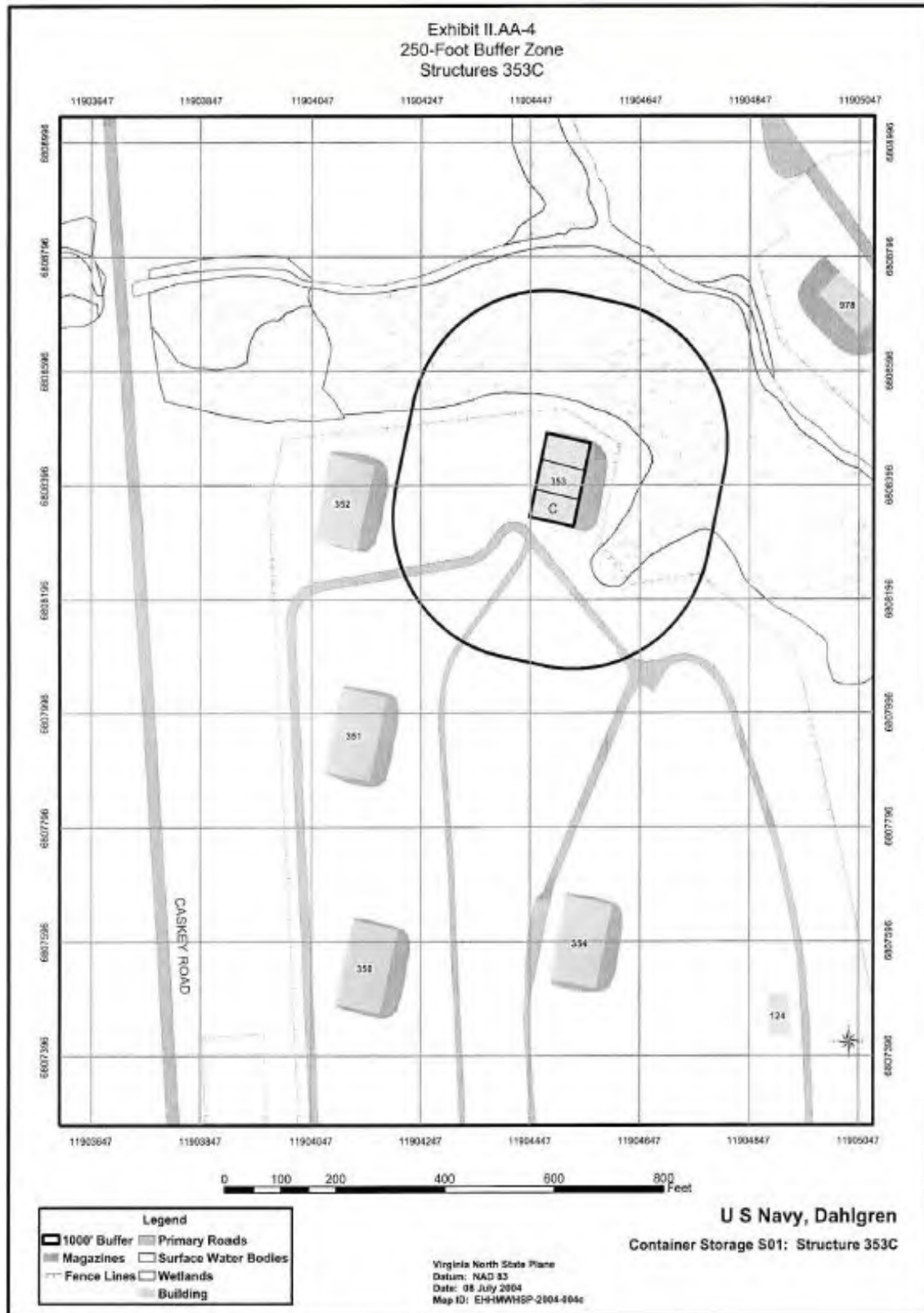


Exhibit II.DD-4 250Foot Buffer Zone –Structure 353C



MODULE II

ATTACHMENT II.EE

PERSONNEL TRAINING

MODULE II – ATTACHMENT I.II.EE – PERSONNEL TRAINING

II.II.EE.1. Personnel Training

The Naval Surface Warfare Center Dahlgren Division (NSWCDD), once a host Command, is now a tenant on Naval Support Facility Dahlgren (NSFDL) after a Navy-wide restructure. As a result of this restructure, the Base Fire Department is no longer under the command of NSWCDD. For this reason, NSWCDD can no longer require specific training for the Base Fire Department employees nor obtain training records for these employees. However, the Base Fire Department remains responsible for responding to emergency situations for all tenant commands at the Dahlgren Naval Base.

As indicated in 29 CFR 1910.120, if outside fully-trained emergency response teams respond in a reasonable period, employees need only receive awareness training. As the Base Fire Department remains responsible for emergency response, NSWCDD employees only receive awareness training, which as defined by the regulation, includes ensuring the employee can recognize that an emergency response situation exists and they have been instructed to make the appropriate call so that the emergency response team reacts.

This section outlines the training program for NSWCDD personnel involved in explosive hazardous waste operations.

II.II.EE.1.a. Outline of the Training Program

After initial and hands-on training for new personnel, experienced employees accompany new hires to the field and demonstrate safe practices and operating procedures. Continuous on-the-job-training (OJT) also helps ensure that personnel retain formal course material and practice safe work habits. OJT can include review of operating procedures, such as Standard Operating Procedures (SOPs) or General Operating Procedures (GOPs), hazard control briefs, stand-up safety meetings, as well as other training events. Table II.II.EE-1 lists the name, content, and frequency of relevant training courses.

II.II.EE.1.b. Job Title/Job Description

NSWCDD personnel listed in Table II.II.EE-2 are directly involved with explosive hazardous waste activities. The NSWCDD Safety and Environmental Office is responsible for ensuring personnel receive the appropriate training in accordance with this permit. Table II.II.EE-2 summarizes the duties and qualifications of each explosive hazardous waste worker position. Courses appropriate to each job title are included and correspond to Table II.II.EE-1. All training will be documented and filed with the Safety and Environmental Office.

II.EE.1.c. Training Content, Frequency, and Techniques

The explosives hazardous waste training program is designed to ensure NSWCD personnel are knowledgeable to safely handle, package, store, transport, and treat explosive hazardous waste. Courses taken by NSWCD personnel stress worker safety, as well as environmental protection. In addition, NSWCD personnel are trained to respond safely and communicate effectively in emergency situations, including evacuation, contingency plan implementation, emergency equipment use, operation shutdown procedures, and emergency response to fire, explosion, and/or groundwater or surface water contamination. Courses are designed to address hazards and response techniques for wastes to which NSWCD personnel can expect to be exposed, specifically explosive hazardous waste. Table II.EE-3 presents course titles, duration, and frequency.

Table II.EE-1

Training Courses for NSWCDD Personnel Managing Explosive Hazardous Waste

Name	Frequency	General Content
Transportation of Hazardous Materials Training	Initial and/or Refresher	This course provides detailed technical information pertaining to all phases of transportation for hazardous materials, and satisfies the mandatory training for persons who certify hazardous materials and conduct function-specific training for subordinate personnel as specified in the Defense Transportation Regulation. Course content includes the Department of Transportation (DOT) 49 Code of Federal Regulations (CFR) and U.S. military regulations governing the transportation of hazardous materials by all modes (i.e., land, vessel, and commercial/military air). Topics emphasized included shipping papers, marking, labeling, placarding, packaging, compatibility, and emergency response information.
Hazardous Material Driver Course	Initial and/or Refresher	This course is to increase a hazmat driver's safety awareness and reduce hazardous material (hazmat) incidents. The training includes general awareness and familiarization, safety, security awareness, and driver training for each hazmat employee that operates a motor vehicle.
Explosive Safety Qualification Certification (Qual/Cert) Training	Initial and continuous	Personnel in the Explosives Safety Qual/Cert Program must complete the Basics of Naval Explosive Hazard Control. They must participate in explosive safety standdowns, receive inert training, and complete proficiency demonstrations before being qualified and certified to work with explosives and explosive hazardous waste. Explosive Ordnance Disposal (EOD) personnel are in the Qual/Cert Program.
Hazard Communication Training	Initial/ When Hazards Change	This training communicates the hazards associated with workplace chemicals to employees. It provides employees with information concerning hazardous chemicals through labels, safety data sheets (SDSs) and procedures to follow for the safe handling and use of chemicals including proper storage techniques, use of personal protective equipment, engineering controls, and spill containment/cleanup materials. The training also covers routes of entry for hazardous materials to enter the body and the effects that specific chemicals found at the site might have on people, property, or the environment.
	Initial 40	This course meets the OSHA requirements for training

Name	Frequency	General Content
40-hour HAZWOPER	hours	personnel engaged in hazardous waste operations as outlined in 29 CFR 1910.120. This includes workers who are involved in clean-up operations, operations at uncontrolled hazardous waste sites, emergency response operations, and/or storage, disposal, or treatment of hazardous waste. Topics discussed in detail include applicable federal regulations, hazardous chemical's properties and toxicology, safety hazards, medical surveillance, emergencies, contingency plan, personal protective equipment, etc.
24-hour HAZWOPER	Initial 24 hours	This course meets the OSHA requirements for training personnel engaged in hazardous waste operations as outlined in 29 CFR 1910.120. Many of the topics are the same as those listed above for 40-hour HAZWOPER.
HAZWOPER Refresher	Annual refresher	This course meets the OSHA requirements for training personnel engaged in hazardous waste operations as outlined in 29 CFR 1910.120. It briefly goes over topics covered in the 40-hour HAZWOPER.
RCRA Training	Initial and annual refresher	This training is specific to the type of work performed by the participants and the applicable RCRA requirements. The training includes the trainee's responsibilities, hazardous waste management procedures, and emergency procedures. Information regarding specific permit requirements is also covered.

CFR = Code of Federal Regulations
DOT = Department of Transportation
MSDS = Material Safety Data Sheet

HAZWOPER = Hazardous Waste Operations & Emergency Response
OJT = On-the-Job Training
RCRA = Resource Conservation and Recovery Act

Table II.EE-2

NSWCDD Personnel Job Duties and Qualifications

Job Duties and Qualifications	Training Required
<i>Environmental</i>	
Must complete a continuing program of classroom instruction or OJT that allows personnel to advise on environmental matters and ensure NSWCDD's compliance with state, federal, and Navy regulations.	<ul style="list-style-type: none"> • Hazard Communication • HAZWOPER (initial 40 hours) • HAZWOPER (refresher) • RCRA
<i>Environmental (Hazardous Waste Trainer)</i>	
Must complete a continuing program of classroom instruction or OJT that allows personnel to advise on environmental matters and ensure NSWCDD's compliance with state, federal, and Navy regulations. Should have a minimum of 1 year of experience in environmental hazardous waste operations in order to provide site specific training on hazardous waste operations.	<ul style="list-style-type: none"> • Hazard Communication • HAZWOPER (initial 40 hours) • HAZWOPER (refresher) • RCRA
<i>Explosive Ordnance Disposal (EOD)</i>	
Identifies, evaluates, renders safe, and thermally treats (open detonation) experimental, prototype, and retrograde ordnance items. Routinely handles explosive items before and after testing. Hazardous waste duties include proper labeling, marking, and storage in compliance with state and federal regulations. Conducts open detonation thermal treatment in accordance with NAVSEA OP 5. Must complete a continuing program of classroom instruction or OJT that teaches performance of hazardous waste related duties in a manner that ensures NSWCDD's compliance with state, federal, and Navy regulations.	<ul style="list-style-type: none"> • Continuous OJT • Hazard Communication • HAZWOPER (initial 24 hours) • HAZWOPER equivalent (refresher) • RCRA
<i>Ordnance Shipper/Receiver</i>	
Hazardous waste duties include proper labeling, marking, and storage in compliance with state and federal regulations. Shipping/receiving responsibilities include knowledge of Department of Transportation, ordnance, and hazardous waste regulations. Must complete a	<ul style="list-style-type: none"> • Transportation of Hazardous Materials (initial/refresher) • Continuous OJT • Hazard Communication • HAZWOPER (initial 24 hours) • HAZWOPER equivalent (refresher)

Job Duties and Qualifications	Training Required
continuing program of classroom instruction or OJT that teaches performance of hazardous waste related duties in a manner that ensures NSWCCD's compliances with state, federal, and Navy regulations.	<ul style="list-style-type: none"> • RCRA
<i>Ordnance Worker</i>	
Assembles, disassembles, adjusts, modifies, repairs, and installs complete assemblies of experimental and prototype ordnance items. Routinely handles explosive items before and after testing. Hazardous waste duties include proper labeling, marking, and storage in compliance with state and federal regulations. Conducts open burning thermal treatment in accordance with NAVSEA OP 5. Must complete a continuing program of classroom instruction or OJT that teaches performance of hazardous waste related duties in a manner that ensures NSWCCD's compliance with state, federal, and Navy regulations.	<ul style="list-style-type: none"> • Explosive Safety Qualification Certification • Continuous OJT • Hazard Communication • HAZWOPER (initial 24 hours) • HAZWOPER equivalent (refresher) • RCRA
<i>Satellite Accumulation, Less than 90-day Site Workers</i>	
Responsibilities relative to this document will address explosive hazardous waste management. Routinely handles explosive hazardous materials that result in the generation of explosive hazardous waste. Must complete a continuing program of classroom instruction or OJT that teaches requirements of explosive hazardous waste storage duties in a manner that ensures NSWCCD's compliance with state, federal, and Navy regulations.	<ul style="list-style-type: none"> • Continuous OJT • Hazard Communication • RCRA
<i>Transporter</i>	
Operates a vehicle used to transport explosives and/or hazardous waste. Must obtain a valid State Driver's License and, if transporting explosives or waste off-station, a Commercial Driver's License.	<ul style="list-style-type: none"> • Hazardous Material Driver Course (initial/refresher) • Hazard Communication

HAZWOPER = Hazardous Waste Operations and Emergency Response
NSWCDD = Naval Surface Warfare Center Dahlgren Division
OJT = On-the-Job Training
RCRA = Resource Conservation and Recovery Act

Table II.EE-3
Course Overview

Course Title	Duration	Frequency
Continuous On-the-Job-Training (OJT) (includes Hazard Control Briefs and stand-up safety meetings)	4 hours (minimum)	Annual
Defense Packaging of Hazardous Materials for Transportation (initial)	80 hours	Initial
Defense Packaging of Hazardous Materials for Transportation (refresher)	40 hours	Every 2 years
Hazardous Material Driver Course (initial)	12 hours	Initial
Hazardous Material Driver Course (refresher)	4 hours	Every 2 years
Explosive Ordnance Disposal (EOD) Formal Training	13 months	Initial
Explosive Safety Qualification Certification	^a	Annual
Hazard Communication	4 hours	Initial
Hazardous Waste Operations and Emergency Response (HAZWOPER) (initial 24)	24 hours	Initial
HAZWOPER (initial 40)	40 hours	Initial
HAZWOPER (refresher)	8 hours	Annual
Resource Conservation and Recovery Act (RCRA)	0.5 hours	Annual

^aEmployees in this program receive training specific to their job responsibilities. Durations may vary.

II.EE.1.d. Training Director

The training program as outlined in this section is directed by the Safety and Environmental Office's Environmental Program Manager. The Environmental Program Manager, as well as, anyone assigned to perform the listed in-house training must have successfully completed a continuing program of classroom instruction or OJT. The in-house trainer must demonstrate that he or she has a thorough understanding of the State, Federal, and Navy regulations regarding hazardous waste management. The trainer must have a minimum of one year experience in environmental hazardous waste operations. Each job position requires specific training as outlined in Table II.EE-2. This training is pertinent to the duties to be carried out by each position identified. Specific content of required training is found in Table II.EE-1.

II.EE.1.e. Training for Emergency Response

The training program includes instruction that teaches NSWCDD personnel hazardous waste management procedures (including contingency plan implementation) relevant to their position. The training program is designed to ensure that NSWCDD personnel are able to respond effectively to emergencies by familiarizing them with emergency procedure, emergency equipment, and emergency systems, including where applicable:

- Procedures for locating, using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
- Key procedures for automatic waste feed cutoff systems;
- Emergency communications procedures and alarm systems;
- Response to fires and explosions;
- Response to groundwater contamination incidents and procedures for containing, controlling, and mitigating spills, and for shutdown of facility operations if necessary;
- Shutdown operations and power failure procedures; and
- Procedures for evacuation of nearby areas.

In addition to hazardous waste management personnel, the Base Fire Department is on standby for response to fires and other emergencies. Base Fire Department personnel are trained using both classroom methods and response drills as required by their command's emergency management and emergency preparedness programs.

II.EE.2 Implementation of Training Program

All new personnel complete the required training within 6 months of assignment to a hazardous waste position or within 6 months of their date of employment, whichever is later. No employee working in a hazardous waste position works in an unsupervised capacity prior to completion of the training program.

In accordance with 40 CFR Part 264, § 264.16, NSWCDD maintains records at the facility documenting the job titles of each position related to hazardous waste management, the name of the employee filling each job, written job descriptions for each position, and training completed by NSWCDD personnel. Training records on current employees are kept a minimum of 3 years from the date the employee last worked for NSWCDD. Personnel training records accompany personnel transferred within NSWCDD or to another activity.

Each explosive operation is conducted under a SOP. Each SOP describes responsibilities, tasks, personnel and material limits, safety requirements, site specifications, emergency response and contingency plans, environmental protection procedures, equipment lists, step-by-step procedures, and warnings. The site supervisor is responsible for giving a hazard control brief for each specific SOP and ensuring all workers sign the attendance sheet. At the Hazard Control Briefing, each worker must sign a statement that he/she has read and understood the SOP, will comply with the SOP, and will stop the process if the operation does not conform to the SOP. The “read and understand statement” is valid for 30 days. SOPs for recurring operations must be reviewed and rewritten in accordance with the Naval Ordnance Safety and Security Activity instruction, Standard Operating Procedures Development, Implementation, and Maintenance for Ammunition and Explosives.

The HAZWOPER initial course (whether 40 or 24 hour) is required to ensure NSWCDD personnel fulfill the initial training requirements defined in 40 CFR 1910.120. Table II.EE-4 lists personnel and the HAZWOPER courses they are required to complete.

Table II.EE-4

HAZWOPER Course Requirements

Job Title	40-hour	24-hour	8-hour Refresher	8-hour Equivalency
Environmental	x		x	
Environmental (Hazardous Waste Trainer)	x		x	
Explosive Ordnance Disposal		x		x
Ordnance Shipper/Receiver		x		x
Ordnance Worker		x		x

Ordnance and EOD personnel may elect to take HAZWOPER Equivalency Training as shown in Table II.EE-5 instead of the HAZWOPER annual refresher.

These HAZWOPER annual refresher equivalent training requirements will be met through a combination of continuous OJT and the Annual Explosive Safety Stand-down.

Table II.EE-5

HAZWOPER Equivalency Training

Training Required	Equivalent Training
40 CFR Part 264, Subpart D, § 264.56 <ul style="list-style-type: none">• Hazardous waste management procedures, including contingency plan implementation• Emergency procedures, equipment, and systems	Hazard Control Brief, SOP, RCRA Update
OSHA 1910.120 <ul style="list-style-type: none">• Persons responsible for site safety and health• Safety and health hazards on-site• PPE use• Work practices to minimize risks• Engineering controls and equipment• Medical surveillance—how to recognize signs of overexposure• If supervisor, safety and health, employee training, PPE, and spill containment programs• If supervisor, health hazard monitoring and techniques	Hazard Control Brief, SOP, Qualification Certification, RCRA Update

OSHA = Occupational Safety and Health Administration

PPE = Personal Protective Equipment

RCRA = Resource Conservation and Recovery Act

SOP = Standard Operating Procedure

VAC = Virginia Administration Code

MODULE II

ATTACHMENT II.FF

CONTINGENCY PLAN

MODULE II - ATTACHMENT II.FF – CONTINGENCY PLAN

II.FF.1. General Information

This Hazardous Waste Contingency Plan pertains only to Naval Surface Warfare Center Dahlgren Division (NSWCDD) operations.

NSWCDD, once a host Command, is now a tenant on Naval Support Facility Dahlgren (NSFDL) after a Navy-wide restructure. As a result of this restructure, the Base Fire Department and Base Security are no longer under the command of NSWCDD. However, the Base Fire Department and Base Security remain responsible for responding to emergency situations with Base Fire Department personnel acting as the Incident Commander (IC). When the IC is required to take action defined in this plan, the IC may designate a qualified individual to undertake those actions upon his/her behalf.

II.FF.1.a. Incident Commanders and Emergency Coordinators

This Hazardous Waste Contingency Plan pertains only to NSWCDD operations. Throughout this plan, the IC is responsible for implementing first responder duties and will be in charge of the incident until the emergency is deemed over by the IC. During this time, the IC will be responsible for those activities identified as Emergency Coordinator responsibilities in 40 CFR 264.55-264.56. However, the NSWCDD Emergency Coordinator shall be present to assist the IC as required. Only after the IC has deemed the emergency over will the NSWCDD Emergency Coordinator resume the responsibilities identified in 40 CFR 264.56(g) through (j).

At all times, there must be at least one employee either on the facility premises or on call with the responsibility for coordinating emergency response measures. The Base Fire Department meets this requirement by maintaining an operational crew on-site 7 days a week, 24-hours a day. The most senior member of the Base Fire Department acts as the IC. The IC is familiar with operations and activities, locations and characteristics of waste handled at NSFDL, and the facility layout, while the NSWCDD Emergency Coordinator is familiar with the location of records for NSWCDD operations.

Table II.FF-1 includes a list of names, addresses and office and home phone numbers of persons qualified to act as NSWCDD Emergency Coordinator on behalf of NSWCDD.

II.FF.1.b. Implementation

NSWCDD, a tenant on NSFDL, has prepared this contingency plan to minimize hazards to human health and the environment resulting from the unplanned release of hazardous materials associated with operations performed by NSWCDD personnel.

The provisions of this contingency plan will be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

II.FF.2. Emergency Actions

II.FF.2.a. Notification

A fire, explosion, explosives incident, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water may be discovered by personnel during normal operations or by incidental observations. When an incident occurs, the following actions taken will depend on the emergency.

1. Fire, explosion, or explosives incident—The person discovering the fire, explosion, or explosives incident will activate the emergency 911 system by calling 911 by telephone or radio or sounding an automatic alarm (if available). Once the emergency 911 system has been activated, the person discovering the incident will notify others in the area of danger, direct personnel to move to a designated assembly point, account for personnel, and notify the supervisor. All 911 dispatchers contact the Base Fire Department and the Base Security for emergencies. If someone is unaccounted for, personnel shall notify the Base Fire Department immediately upon their arrival. Rescue attempts will be made at the discretion of the IC. The IC will work with appropriate personnel to determine what measures are to be implemented. Personnel will not return to the site until given authorization by the IC or Base Security. If assistance is required from off-site authorities or officials, the IC will request the required assistance.
2. Non-incidental release – This is a sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water that poses a potential significant safety or health hazard to employees. This type of release is different than an incidental release in that personnel in the area are not qualified to respond due to the quantity, exposure potential, toxicity, or the threat to the environment. The person discovering this type of incident will activate the emergency 911 system by calling 911 by telephone or radio or sounding an automatic alarm (if available). Once the emergency 911 system

has been activated, the person discovering the incident will notify others in the area of danger, direct personnel to move to a designated assembly point, account for personnel, and notify the supervisor. All 911 dispatchers contact the Base Fire Department and the Base Security for emergencies. If someone is unaccounted for, personnel shall notify the Base Fire Department immediately upon their arrival. The IC will direct the activation of a response team and mobilization of personnel and equipment for control, containment, and life safety as needed. The IC will work with appropriate personnel, including the NSWCDD Emergency Coordinator if necessary, to determine what measures are to be implemented. Personnel will not return to the site until given authorization by the IC or Base Security. If assistance is required from off-site authorities or officials, the IC will request the required assistance.

3. Incidental release - An incidental release is a release of hazardous waste or hazardous waste constituents that does not pose a significant safety or health hazard to employees in the immediate vicinity or to the employee responding, nor has the potential to become an emergency within a short time. Incidental releases are limited in quantity, exposure potential and toxicity and do not endanger the environment. An incidental spill will be cleaned up by employees who are familiar with the hazards of the chemicals released. NSWCDD maintains a Spill Kit for such incidental releases in Building 189. If emergency equipment from this kit is needed, personnel shall call the NSWCDD Safety and Environmental Office per the numbers provided in Table II.FF-1. The NSWCDD Emergency Coordinator will ensure that the equipment used during an incidental spill is cleaned, fit for reuse, or replaced as soon as possible. Items contained in this Spill Kit are listed in Table II.FF-2.

II.FF.2.b. Identification of Hazardous Materials

NSWCDD maintains a complex of land and water ranges at NSFDL for the research, development, test, and evaluation of live or inert ordnance, weapon system integration, and weapons system components. For this reason, NSWCDD maintains numerous hazardous waste storage facilities for explosives hazardous waste. Figure II.FF-1 shows the explosives hazardous waste storage sites for Mainside, Structures 951, 952, 353C and 408A. Figure II-F-2 shows the location where explosives hazardous waste is stored at EEA, Structures 9481, 9482, 9483, 9484, 9485, 9486 and 9487.

Satellite accumulation areas, which may contain up to 55-gallons of hazardous waste per process, can be found in numerous operations buildings. Usually quantities of these wastes are much less than the 55-gallon limit. Examples of

hazardous waste stored at these sites include but are not limited to, lead-contaminated waste, solvents, oxidizers, mercury, jet fuel, and acids. The location of these satellite accumulation areas can be established and removed frequently depending on changes in processes and operations. For this reason, a current list of NSWCD D satellite accumulation areas will be maintained in the NSWCD D Safety and Environmental Office.

II.FF.2.c. Assessment

Whenever there is an imminent or actual emergency situation, the IC will evacuate the necessary area and notify appropriate facility personnel of the danger. The IC will also notify State or local agencies with designated response roles if their help is needed. Following are the tasks that will be undertaken to assess the situation.

1. Upon a release, fire, or explosion, the IC will identify the character, exact source, amount, and areal extent of any released material. The IC may do this by observation and/or with assistance from an NSWCD D Technical Point of Contact(s) and/or the NSWCD D Emergency Coordinator. The NSWCD D Emergency Coordinator can also provide information through review of facility records or manifests, and, if necessary, by chemical analysis. The IC will implement an on-base evacuation as deemed necessary.
2. The IC will assess possible hazards to human health or the environment that may result from the incident. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or fire extinguishing agents used to control fire and heat-induced explosions.)
3. If the IC determines that the facility has had a release, fire, or explosion that could threaten human health, or the environment on-base, he/she shall order an evacuation as indicated in Section II.FF.5.

If the IC's assessment indicates that the incident threatens areas outside the naval base and evacuation of local areas off-base is advisable, he/she must report his findings as follows:

- a. The IC must immediately notify appropriate local authorities. The IC must be available to help appropriate officials decide whether local areas should be evacuated.

- b. The IC must immediately notify the King George Emergency Services Coordinator at 540-775-2049, the Virginia Department of Emergency Management, Emergency Operations Center at 800-468-8892, and the

National Response Center at 800-424-8802. The IC must provide the following information:

- Name and telephone number of reporter,
- Name and address of facility,
- Time and type of incident (e.g., release, fire),
- Name and quantity of material(s) involved, to the extent known,
- Extent of injuries, if any, and
- Possible hazards to human health or the environment outside the facility.

II.FF.2.d. Control Procedures

During the emergency, the IC must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

II.FF.2.e. Prevention of Recurrence or Spread of Fires, Explosions, or Releases

During the emergency, the IC must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

If the facility stops operations in response to a fire, explosion, or release, the IC will monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

II.FF.2.f. Storage and Treatment of Released Material

Immediately after an incident, the IC will turn over to the NSWCDDE Emergency Coordinator the responsibility for arranging the treatment, storage, or transportation and disposal of recovered waste, waste residue, contaminated soil, or other contaminated materials.

Released material will be containerized and placed in an accumulation area. The waste will be accumulated in compliance with storage requirements and a hazardous waste determination will be performed in a timely manner. Once the waste determination is completed, the NSWCDDE Emergency Coordinator will

ensure that the waste is managed according to the Resource Conservation and Recovery Act (RCRA).

II.FF.2.g. Incompatible Waste

The NSWCDD Emergency Coordinator will ensure that no incompatible waste will be treated, stored, or located within the affected areas. Incompatible wastes will be segregated to prevent reaction or further hazards.

II.FF.2.h. Post-Emergency Equipment Maintenance

After the emergency response is complete, the Base Fire Department will be responsible for cleaning and maintaining their emergency equipment used during the response. The NSWCDD Emergency Coordinator will ensure that any incidental spill equipment maintained by NSWCDD is clean and fit for its intended use.

II.FF.2.i. Container Spills and Leakage

If a sudden or non-sudden spill or leak of hazardous waste or hazardous waste constituents poses a potential significant safety or health hazard to employees, this Hazardous Waste Contingency Plan shall be activated.

An incidental spill will be cleaned up by employees who are familiar with the hazards of the chemicals with which they are working. NSWCDD maintains a Spill Kit for such incidents in Building 189. If emergency equipment from this kit is used, the NSWCDD Emergency Coordinator will ensure that the equipment is cleaned, fit, or replaced as soon as possible. Items contained in this Spill Kit are listed in Table II.FF-2.

II.FF.3. Emergency Equipment

Table II.FF-2 lists the incidental spill equipment maintained by NSWCDD.

II.FF.4. Coordination Agreements

The Base Fire Department and Base Security are aligned under the Base Public Safety Coordinator for the host Command. The host Command is responsible for entering into and maintaining agreements with emergency services providers for all tenants of the naval base at Dahlgren. However, NSWCDD will provide the following emergency services providers with a copy of this Contingency Plan that is specific to NSWCDD operations:

- Naval Support Activity South Potomac,

- Naval Support Facility Dahlgren,
- King George County Department of Emergency Services,
- Mary Washington Hospital, and
- University of Maryland Charles Regional Medical Center.

II.FF.5. Evacuation Plan

Depending on the type, size, and/or location of the emergency, personnel may be required to either evacuate a localized area, such as a building, or the naval base.

“Building” or “localized” evacuation is when personnel are directed to clear an area but not to leave the naval base property. When personnel evacuate a building, they shall move to a designated assembly point and will not reenter the building until directed to do so by the IC or Base Security.

“Site” evacuation is when personnel are directed not only to clear an area but also leave the naval base property. Personnel shall evacuate as quickly as possible when directed and comply with specific instructions of emergency responders or Base Security. General evacuation routes for Mainside and the Explosives Experimental Area (EEA) are provided as Figures II.FF-3 and II.FF-4, respectively. However, personnel shall follow Base Security direction as they will determine primary and alternate routes of evacuation based on numerous factors to include but not be limited to, number of evacuees, location, type of hazardous waste or incident, and wind direction.

II.FF.6. Required Reports

The incident will be documented in the NSWCCD operating record and include the date, time, and details of the incident that required implementation of this contingency plan. Within 15 days after the incident, a written report will be submitted to the Virginia Department of Environmental Quality that includes:

- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident;
- Name and quantity of material(s) involved;
- The extent of injuries, if any;
- An assessment of actual or potential hazards to human health or the environment, where this is applicable;
- Estimated quantity and disposition of recovered waste that resulted from the incident; and
- Such other information specifically requested by the Director that is reasonable, necessary, and relevant to the purpose of an operating record.

TABLE II.FF-1

**DESCENDING ORDER OF PERSONNEL CAPABLE OF
ACTING AS NSWCDD EMERGENCY COORDINATORS**

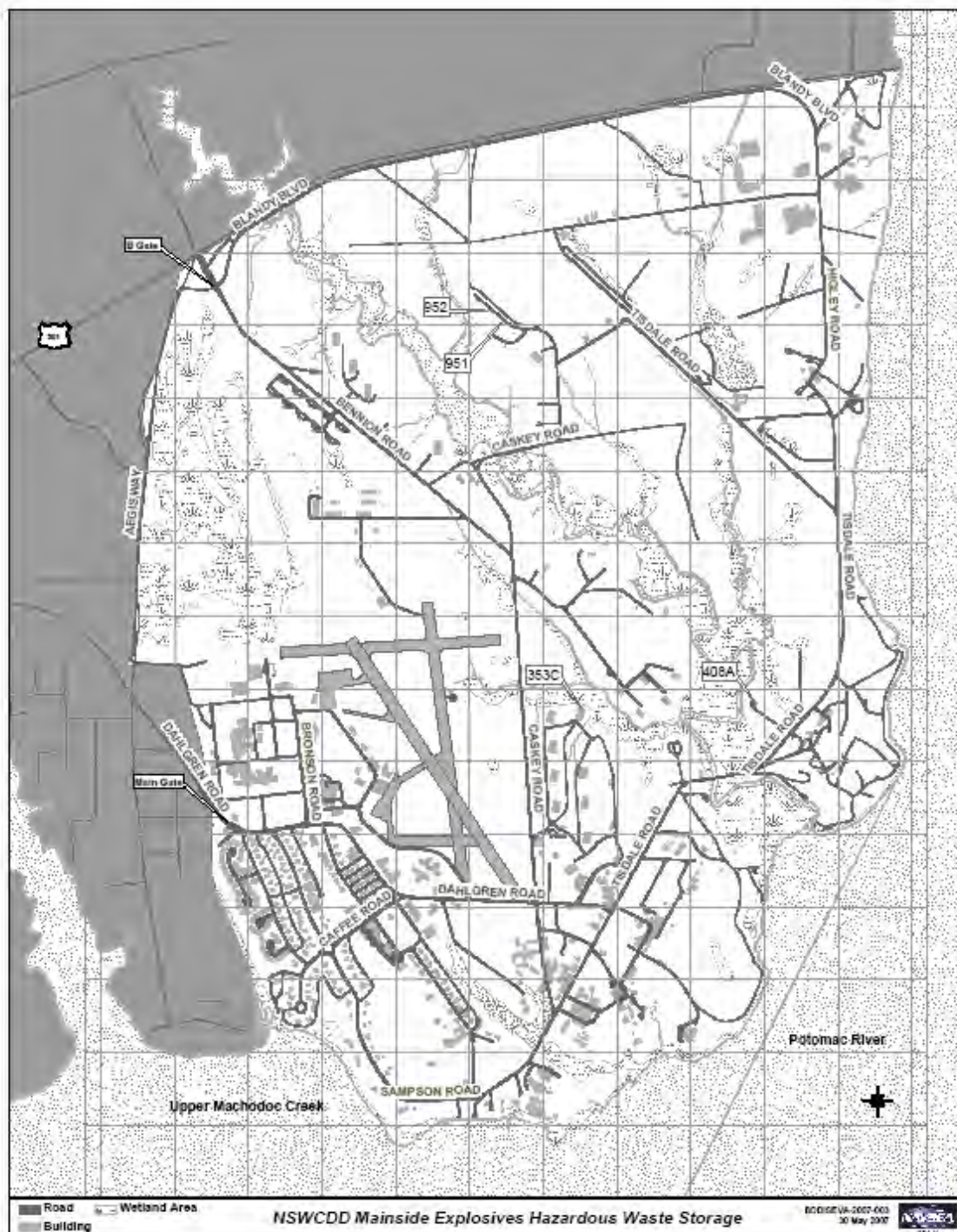
Primary Jeanne L. Hartzell 75 Wilderness Court Stafford, VA 22556 540-653-0933 office 540-408-2145 cell
Alternate John J. Kaelin 4307 Amelia Drive Fredericksburg, VA 22408 540-653-4296 office 540-850-6530 cell
Alternate Jeffrey R. Hughes 5281 Quesenberry Drive King George, VA 22485 540-653-8683 office 540-663-3753 home

TABLE II.FF-2

**INCIDENTAL SPILL EQUIPMENT MAINTAINED BY NSWCCD
BUILDING 189, ROOM 105 (VAULT)**

Physical Description of Spill Equipment	Capabilities
Latex Gloves	Protect Hands
Work Gloves	Protect Hands
Splash Goggles	Protect Eyes
Safety Glasses	Protect Eyes
Tyvek Suits/Boots	Personnel Protection
Litmus Paper	Identification of pH
Baking Soda	Neutralization of Acid Spills
Stay Dry Absorbent	Absorb Spill
Towels	Absorb Spill
Oil Pillows	Absorb Spill
Oil Snake/Boom	Contain Spill
Wipes	Clean Up Equipment/Small Spills
Plastic Disposal Bags	Collect Material for Disposal
Hazardous and Non-Hazardous Waste Stickers	Identification of Waste
Rope	Secure Containers during Transport
Plastic Sheeting	Cover Spill Area or Debris
5-Gallon Plastic Pails	Collect Material for Disposal
Broom	Sweep Up Spill and Absorbent
Dust Pan	Pick Up Spill and Absorbent
Shovel	Pick Up Spill and Absorbent

Figure II.FF-1
Mainside Explosives Hazardous Waste Storage Facilities
Structures 951, 952, 353C (Permitted Facilities) and 408A (Conditionally Exempt)



Structures 9481, 9482, 9483, 9484, 9485, 9486, and 9487 (Conditionally Exempt)



Figure II.FF-3

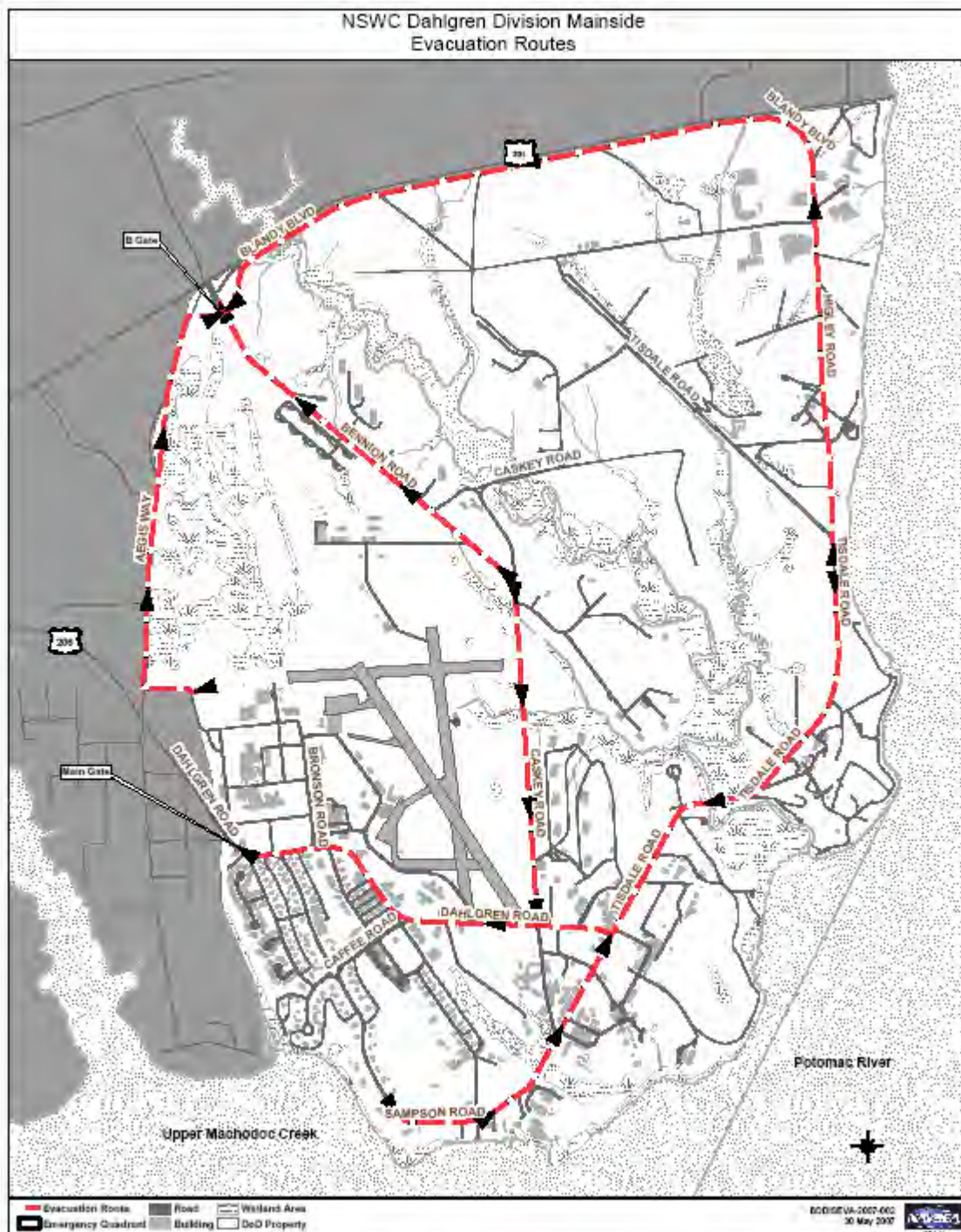
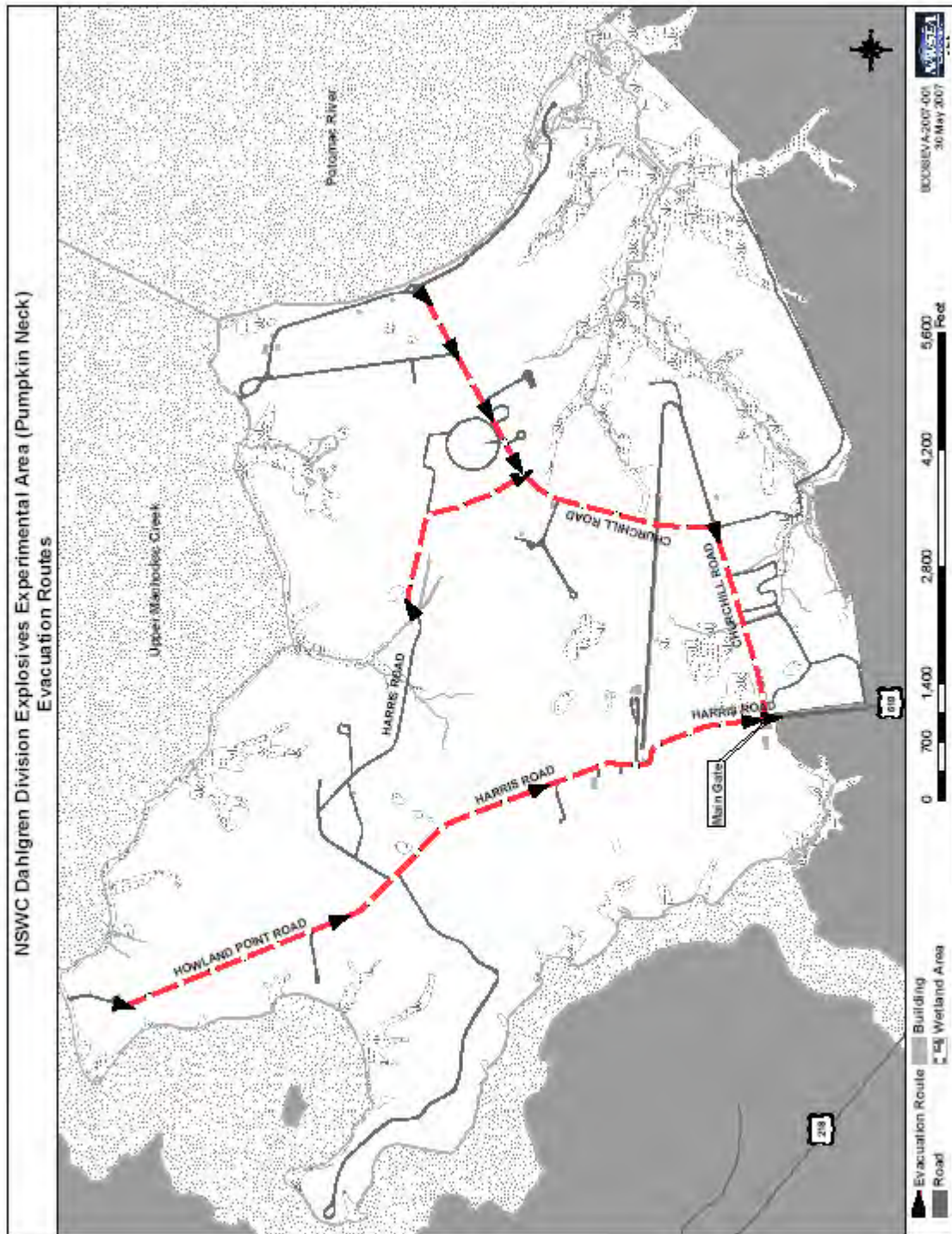


Figure II.FF-4
General Evacuation Routes for the Explosives Experimental Area (EEA)



MODULE II

ATTACHMENT II.GG

CLOSURE PLAN

CLOSURE PLAN

**Department of the Navy
Naval Surface Warfare Center Dahlgren
Division
17483 Dahlgren Road, Suite 104
Dahlgren, VA 22448-5119**

**EPA ID Number VA7170024684
September 10, 2014**

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MODULE II-ATTACHMENT II.GG – CLOSURE PLAN

The hazardous waste storage operations at NSWCD will be closed when the Center's research, development, testing, and evaluation mission is terminated. NSWCD does not have any foreseeable plans for closure of the Center, nor does it have plans to substantially change its mission. It is, therefore, not possible to state an exact year for closure of the hazardous waste storage facilities which are subject of this closure plan. When operations cease or the need for the permitted site, or portion thereof, no longer exists, closure will be implemented in accordance with following paragraphs.

MODULE II-ATTACHMENT II.GG - CLOSURE PLAN

II.GG.1. Introduction

This closure plan has been prepared In accordance with the Virginia Hazardous Waste Management Regulations (VHWMR), as codified in the Virginia Administrative Code, Title, 9, Agency 20, Chapter 60 (9VAC 20-60-12), the Resource Conservation and Recovery Act (RCRA) regulations, the Hazardous and Solid Waste Amendments (HSWA) of RCRA, and the Virginia Department of Environmental Quality (VDEQ), *Draft Guidance manual for Closure Plans for Hazardous Waste Management Facilities*, dated September 28, 2001, NSWCD D submits this closure plan for the hazardous waste storage operations at NSWCD D, as part of its permit application for a RCRA Part B permit.

II.GG.1.a. Closure Performance Standards

The closure plan is designed to ensure that the owner or operator must close the facility in a manner that:

- (a) Minimizes the need for further maintenance;
- (b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the groundwater or surface waters or to the atmosphere;
- (c) Complies with the closure requirements of this subpart, including, but not limited to, the requirements of 40 CFR Parts 264 and 265, as applicable; and
- (d) Meets the requirements of the VHWMR, as codified in 9 VAC 20-60-264.

An inspection by a Professional Engineer will be conducted to determine if any pathways (i.e., a crack, expansion joint, etc.) exist for hazardous chemicals to have impacted the soil beneath the concrete slab. If the inspection indicates the existence of any pathways, then compliance samples will be collected to determine if operations at the hazardous waste storage operations at NSWCD D have impacted the soil beneath Structures 353C, 951, and 952. Site compliance and background samples will be analyzed for the hazardous constituents of concern (HCOCs) presented in Exhibit II.GG-1, which was developed based on the types of waste permitted for storage at the units.

This closure plan is designed to achieve final closure of the hazardous waste management units (HWMUs). The HWMUs will have achieved clean closure when all hazardous waste or hazardous waste constituents of concern (HCOCs) have been removed from the HWMUs to levels such that direct contact with any parts of the HWMU or any HCOCs

that remain after closure will not pose a threat to human health and/or the environment, nor adversely impact any environmental media in excess of VDEQ established exposure levels.

Achievement of clean closure will be demonstrated by the systematic removal of hazardous wastes, by decontamination of the equipment, structures, and soils and subsoils (if needed), by comparison of the HCOCs in the sample compliance data to one of the three decontamination standards in this closure plan.

If this facility is unable to attain clean closure for the HWMUs, an amended closure plan and contingent closure, including landfill-cap installation, long-term groundwater monitoring, and post-closure plan will be submitted to VDEQ for approval to provide for closure with hazardous waste closed in-place, and for the post-closure care and use of the property, respectively.

A copy of the Closure Plan will be maintained at the NSWCDD, Environmental Office, until closure is completed and approved by VDEQ.

II.GG.1.b. Facility Identification and Contact Person

The facility is identified as:

Facility:	Naval Surface Warfare Center Dahlgren Division
Units:	Structures 353C, 951, and 952
Owner/Operator:	U. S. Navy
Owner/Operator Address:	6149 Welsh Road, Suite 203 Dahlgren, Virginia 22448
Telephone Number:	(540) 653-8101
Unit Address:	Magazine Area #1 (353C) and Magazine area #3 (951 and 952) Dahlgren, Virginia 22448
EPA ID Number:	VA7170024684

The contacts for this Closure Plan are Jennifer Boyd, Head Safety and Environmental Office, NSWCDD, Phone (540) 653-8695, Fax (540) 653-7965; and Jeffrey R. Hughes, NSWCDD, Environmental Office, Phone (540) 653-9283, Fax (540) 653-7965.

II.GG.1.c. Partial and Final Closure Activities

NSWCDD intends to continue full operation of Structures 353C, 951, and 952 until the facility ceases operations at an unspecified date in the future. The hazardous waste storage operations at NSWCDD will be closed when the Center's research, development, testing, and evaluation mission is terminated. Therefore, partial closure of these units will not be required. Should this change, a revised Closure Plan will be

submitted to VDEQ for approval.

A date for closure of Structures 353C, 951, and 952 is indefinite. The VDEQ will be notified in writing at least 45 days prior to initiating closure for Structures 353C, 951, and 952. Prior to initiating closure activities, any hazardous waste will be removed from the storage units and either treated at the open burning or open detonation units located at the Explosive Experimental Area, Churchill Range or shipped to a permitted treatment, storage, and disposal facility for treatment. Any debris in the storage units will be collected and also disposed of in accordance with the applicable Federal, State, and local regulations.

NSWCDD will submit a written request for a permit modification to authorize change in the approved Closure Plan if:

- Changes in operating plans or facility design affect the Closure Plan;
- There is a change in the expected year of closure, if applicable;
- In conducting partial or final closure activities, unanticipated conditions are discovered that would require a modification to the Closure Plan.

The Permittee will submit a written request for a permit modification including a copy of the amended Closure Plan for approval as follows:

- At least 60 days prior to implementation of the proposed changes in facility design or operation; or
- No later than 60 days after an unexpected event has occurred, which had affected the Closure Plan.

If an unexpected event occurs during the partial or final closure period, the Permittee will request a permit modification no later than 30 days after the unexpected event. The DEQ will approve, disapprove, or modify this amended Closure Plan in accordance with the procedures in 40 CFR Parts 124 and 270. In accordance with 40 CFR § 270.32, the approved Closure Plan will become a condition of this Permit.

II.GG.1.d. Facility History

NSWCDD, named for Rear Admiral John A. Dahlgren, is located in Dahlgren, Virginia and part of the Naval Support Facility Dahlgren (NSFDL). NSWCDD was founded as the U. S. Naval Proving Ground on October 16, 1918, as a result of the expanded range on large caliber naval guns but was renamed sometime after 1950 to the U. S. Naval Weapons Laboratory. In 1974, it was renamed the Naval Surface Weapons Center, and obtained its current name around 1990.

NSWCDD applied for its original RCRA Storage Permit using United States Environmental Protection Agency (EPA) identification (ID) number VA71700 24684. NSWCDD completed a Notification of Hazardous Waste Activity Form on August 18, 1980 to be a Large Quantity Generator (LQG), a Treater, Storage, and Disposal (TSD), and transporter of hazardous waste. On November 19, 1980, NSWCDD submitted a Part A Application for interim status. NSWCDD was granted interim status in October 1981. On November 8, 1988, NSWCDD submitted a Part B Application to receive a storage permit. On June 21, 1993, the VDEQ issued a storage permit to NSWCDD. On December 18, 2002, NSWCDD submitted Part A and Part B Applications to renew its permit. On September 10, 2004, VDEQ renewed NSWCDD's permit. This Closure Plan is being submitted as part of the application for renewal of the current permit which expires on September 10, 2014.

II.GG.2. Site Description

II.GG.2.a. Location and General Description

The NSWCDD is located in the Commonwealth of Virginia. NSWCDD is a tenant command at (NSFDL) located in the Northern Neck Region of Virginia along the Potomac River, in King George County. NSFDL is 28 miles east of Fredericksburg, Virginia and 53 miles south of Washington, DC. NSFDL is bound on the north by US Highway 301 and on the east by the Potomac River. Primary access to NSFDL is via US Highway 301, VA Route 206, and County Route 614. Controlled access through perimeter fencing to the Mainside is via two entrances. Upper Machodic Creek flows in a general west-to-east direction through NSFDL, dividing it into two principal areas: mainside, consisting of 2,673 acres and the Explosive Experimental Area (EEA) consisting of 1,631 acres. Mainside is divided by Gambo Creek, which flows in a general north-south direction. The EEA, located at Tetotum Flats, is more commonly referred to as Pumpkin Neck.

The location of Structures 353C, 951, and 952 is identified on Figure II.GG-1, Site Location and Topographic Map. Structures 951 and 952 are 10' by 14' earth covered reinforced concrete box magazines. Structure 353C is a 25' by 80' earth covered reinforced concrete arched magazine.

II.GG.2.b. Site History

Structures 353C, 951, and 952 are permitted RCRA hazardous waste management units under the current facility permit. According to onsite records, Structures 951 and 952 were constructed in 1952. Structure 353 was constructed in 1944.

According to NSWCCD personnel, these structures have been utilized for storage of ammunition and explosives since construction. No visual evidence of impact from previous activities was observed prior to issuance of the current permit for these storage units.

II.GG.2.c. Hazardous Constituents of Concern

Exhibit II.GG-1 – is a list of Hazardous Waste Constituents of Concern (HCOCs) that were developed based on the types of waste permitted for storage at these units. This table presents the analyte list that will be used during closure. Samples collected in conjunction with closure activities (except waste characterization samples) will be analyzed for the constituents presented in Exhibit II.GG-1, as appropriate, using the specified EPA SW-846 method or other appropriate test method.

II.GG.3. Site Characterization

II.GG.3.a. Topography

In Virginia, the Coastal Plain province is characterized by low relief, with elevations ranging from sea level to 400 feet above mean sea level (MSL). The Chesapeake Bay and Potomac River are prominent features of the Coastal Plain in the vicinity of NSFDL. Elevations at NSFDL range from 0 to approximately 25 feet above MSL with gradual slopes. The broad, low-lying area surrounding and including NSFDL is interpreted as being a past shore of the Potomac River where alluvial deposition has produced the present flat topography.

II.GG.3.b. Surface Water

NSFDL has approximately 4 miles of Potomac River shoreline and approximately 6 miles of Upper Machodoc Creek flows in a general west-to-east direction through NSFDL, dividing it into two principal areas: Mainside, consisting of 2,673 acres and the Explosive Experimental Area (EEA) consisting of 1,631 acres, Mainside is divided by Gambo Creek, which flows in a general north-to-south direction. The EEA, located at Tetotum Flats, is more commonly referred to as Pumpkin Neck. Two man-made impoundments, Hideaway Pond and Cooling pond, are within the installation.

The Potomac River adjacent to NSFDL is approximately 9,000 ft wide and up to 80 ft deep. The total length of the Potomac River is approximately 400 miles, and its watershed encompasses approximately 14,670 square miles. The principal basin of Chesapeake Bay is located approximately 50 miles southeast of NSFDL. The segment of the Potomac River adjacent to NSFDL is tidal and is classified as an estuary zone.

The Potomac River is under the jurisdiction of the State of Maryland. The Potomac River is designated Class II waters suitable for shellfish harvesting by Maryland Water Pollution Control Regulations. Water quality within this segment of the Potomac River

meets the federal Clean Water Act's standards for water-contact recreation, aquatic life, and shellfish harvest.

Upper Machodoc Creek is approximately 3,00 ft wide and up to 9 ft deep. Its total length is approximately 17.4 miles and its watershed encompasses approximately 47.2 square miles. Upper Machodoc Creek and its tidal tributaries are designated Class IIa (estuarine waters capable of propagating shellfish) while the remaining tidal tributaries to the Potomac River within the installation are designated Class IIb water (estuarine water with Potomac embayment standards) by Virginia Water Quality Standards.

Approximately 675 acres of wetlands, including open-water wetlands, are present within NSFDL. The most extensive wetland complexes within NSFDL are the tidal marshes of Gambo Creek and Black Marsh.

II.GG.3.c. Regional Geology/Hydrogeology

The Nanjemoy Formation of the Coastal Plain Province underlies NSFDL. The Eocene Nanjemoy Formation dates from the early to late portion of the Eocene epoch of the Tertiary period. It is comprised of alternating quartz and glauconite sands, clays, and calcitic units of shell and cavernous shell limestone. The basal unit of the formation, the Marlboro Clay, is 0- to 3-ft alternating pinkish-orange and dark-gray clay. Gypsum crystals or rosettes common in caverns are formed at the intersection of joint planes, especially in the clay section.

The major hydrological characteristic of NSFDL is an artesian aquifer approximately 600 to 800 ft Below Ground Surface (BGS). Pollutant migration pathways are largely restricted to near surface migration and surface runoff. The site geology serves to minimize the possibility of contamination of the deep on-site aquifer that serves as a drinking water source for base residents and workers.

II.GG.4. **The Extent of Operation/Maximum Waste Inventory**

The maximum inventories of hazardous wastes in storage at any time during the life of the facility are as follows:

Structure	Maximum Waste Inventory
353C	23,000 lbs NEW
951	11,000 lbs NEW
952	11,000 lbs NEW

II.GG.4.a. Hazardous Waste Storage Container Areas

The types of hazardous waste that maybe stored in Structures 951, 952, and 353C are included in the current permit. No significant change in the permitted waste storage is anticipated under subsequent permit renewals for this facility.

Structures 951 and 952 have been in operation since 1952. Structure 353C has been in operation since 1944. The operation of these structures is expected to continue for the foreseeable future until such time as closure under the plan is initiated.

II.GG.4.b. Past Releases

No releases occurred at Structures 353C, 951, and 951. All items stored at the structures are non-liquids and are contained.

II.GG.5. Overview of Closure Procedures

The purpose of this Closure Plan is to accomplish the closure performance requirements and standards set forth in 9 VAC 20-60-264, Subpart I – Use and Management of Containers and Section II.GG.1 of this plan. The closure plan is designed to provide documentation of the closure of the HWMUs in accordance with the VHWMR and the RCRA, and that any hazardous waste constituents remaining after closure will not adversely impact any environmental media in excess of the DEQ established exposure levels and that direct contact with any constituents remaining from the site will not pose a threat to human health and/or the environment.

This Closure Plan will not be implemented until such time that NSWCDD determines that the units shall be closed. NSWCDD will notify VDEQ in writing at least 45 days prior to initiation of closure activities.

- Samples collected will be analyzed as appropriate for analytes listed in Exhibit II.GG.1.

II.GG.5.a. Closure Procedures

Closure procedures for the site are summarized below.

- **Step 1:** All hazardous waste will be managed in accordance with the VHWMR and RCRA and Health and Safety Plan will be developed and implemented for the facility closure.
- **Step 2:** Mobilize and remove waste and unit components remaining within the unit, if any.
- **Step 3:** Visually inspect the floor slab and concrete curbs from each unit. If no potential migration pathways are identified during the inspection in

- accordance with 40 CFR 264.115, certification by a Professional Engineer will be included in the Closure Report. Proceed to Step 7.
- **Step 4:** In event that cracks, gaps, etc. are found, NSWCDD will submit to VDEQ a diagram of the unit indicating each fault. In addition, NSWCDD will submit for VDEQ review and approval a sampling plan to delineate the number of samples to be taken under the floor, along each identified fault. Each sample will be analyzed using the appropriate analytical methods as documented in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, or other approved method, for the constituents that were stored in that unit as listed in Exhibit II.GG.-1. Proceed to Step 5.
- **Step 5:** Collect background soil samples from an area unaffected by a facility operation.
- **Step 6:** The results of each sample obtained from under the floor will be compared statistically to the mean of the background samples. If the analysis indicates no impact to the environment has occurred then proceed with Step 7. If any constituent is found above background levels (upper confidence interval [CI] of the mean of the background level at a 95% confidence limit), two options are available: perform risk-based performance standard and, if acceptable, proceed to Step 7; or proceed to Step 10.
- **Step 7:** Seal all drainage openings, if any, and decontaminate the concrete floor and berm of the unit(s). Collect rinse waters (after the third rinse or until all visible residual material has been removed from the background structures (353A or 353B for 353C; 953 for 951 and 952). Wash water from cleaning will be disposed of in accordance with the VHWMR. Review and compare re-rinse and final-rinse laboratory analytical results. Background levels will be calculated as the upper CI of the mean at a 95% confidence limit. If the comparison indicates that there is no increase in final-rinse sample concentrations when compared to pre-rinse sample concentrations. Proceed to Step 8.
- **Step 8:** Seal all floor drain openings, if any, in Structures 951, 952, and 353C to rinse with potable water. Wash waters from cleaning will be disposed of in accordance with the VHWMR. After the third rinse or until all visible residual material has been removed, the rinse water will be analyzed for all of the constituents listed in Exhibit II.GG-1.
- **Step 9:** Review and compare final-rinses from 951, 952, and 353C with background trines laboratory analytical results. It will be determined that decontamination has been achieved if the rinse water from Structures 951, 952, and 353C is below detection limits or the mean of the Structures 951, 952, and 353C rinse water is not greater than background levels for all constituents. If comparison indicates decontamination, proceed with Step 11. Otherwise, three options are available: repeat decontamination and re-sample (i.e., repeat Step 8); perform risk-based performance standard and, if acceptable, proceed to Step 11; or proceed to Step 10.

- **Step 10:** The floor of the Structures will be removed and placed in containers for accumulation and eventually disposal in accordance with the VHWMR. Formulate a sampling strategy and collect soil samples from beneath the floor slab within the unit(s) containment berm (as described in Section II.GG.11.b). Collect background soil samples, if they have not already been collected. Analyze samples, review laboratory analysis results, and perform statistical analyses. If the statistical analyses indicate that there is no statistically significant increase in compliance sample concentration when compared to background sample concentrations, then you do not have to perform a health-based risk assessment or request a modification to this Closure Plan to address further excavation of impacted soil. Proceed to Step 11. Otherwise, three options are available: excavate impacted soil and repeat applicable portion of Step 10; perform risk-based performance standard and, if acceptable, proceed to Step 11; or request a modification to this Closure Plan to address further excavation or impacted soil.
- **Step 11:** Upon achieving clean or risk-based closure in accordance with 9 VAC 20-60-264.178 (Closure of Containment Systems), a certified closure report will be prepared and submitted to VDEQ for review.

No waste piles will be created during closure activities. Waste debris, soils, and residues will be stored in large roll-off containers, if needed.

The Regional Office of DEQ will be notified of the temporary (less-than-90-day) storage of hazardous waste and other wastes associated with closure Structures 353C, 951, and 952.

The Regional Office will be notified a minimum 45 days prior to commencement of closure activities.

In accordance with the EPA's Contained-in Policy, contaminated environmental debris or media is subject to regulation under RCRA if they contain hazardous waste.

Contaminated residues and environmental media contain hazardous waste when the following occurs:

- When the residues or media (e.g., soil, aggregate, wastewaters, etc.) exhibit a characteristic of hazardous waste in accordance with 40 CFR Part 261, Subpart C, Characteristics of hazardous Waste, § 261.20.
- When a residue, waste, or wastewater removed from a regulated unit, which manages a listed waste under 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes, contains a hazardous constituent from Part 261 Appendix VI or VIII.
- When the media are contaminated with concentrations of hazardous waste constituents that are above health or risk-based levels.

Any soil, subsoil, and equipment contaminated with hazardous waste and any leachate from the HWMUs are required to be managed as a hazardous waste only if the concentration of HCOCs exceeds the risk level in accordance with the VHWMR and

RCRA. That is, any soils, subsoils, sediments, materials, wastewaters, or equipment contaminated with hazardous waste constituents are required to be disposed in a permitted hazardous waste landfill, unless demonstrated by testing that they are nonhazardous in accordance with specified decontamination standards of the approved closure plan and the VHWMR and RCRA regulations.

The demonstration by testing includes the analyses for all HCOCs specified in the approved closure plan and analyses to demonstrate compliance with the Toxicity Characteristic Leachate Procedure (TCLP) for the contaminants listed in Table 1 under 40 CFR Part 261§ 261.24, Toxicity Characteristic.

All soils, subsoils, sediments, materials, wastewaters, or leachate or other wastes generated during closure that are demonstrated to be hazardous must be treated or disposed so to comply with 40 CFR Part 268, Land Disposal Restrictions, Subpart D, Treatment Standards, § 268.40, Applicability of Treatment Standards.

All waste materials generated in the closure process that are demonstrated as non-hazardous are required to be disposed of as a solid waste in accordance with the VHWMR. Disposal of all nonhazardous wastes will require documentation of disposal from the authority regulated under the Virginia Solid Waste Management Regulations (VSWMR).

Wastewaters generated in the closure process that are demonstrated as nonhazardous are required to be disposed to a publicly or privately owned wastewater treatment plant regulated by the Clean Water Act (CWA) or equivalent. Disposal of all nonhazardous wastewaters will require documentation of prior approval for disposal, and documentation of disposal from the authority regulated under the CWA.

II.GG.5.b. Sampling Protocols

All Samples collected during closure activities (soil, water, and waste) will be collected in compliance with SW-846 Test Methods for Evaluating Solid Waste Field Manual or with currently accepted industrial standards to ensure, at a minimum, the following concerns are addressed: cross-contamination, collection of representative samples, and data quality assurance/quality control (QA/QC) procedures discussed in Section II.GG.5.d.

1. Sampling personnel will wear a new pair of gloves for each sample collected.
2. All samples will be properly labeled at the time of sampling.
3. Following the collection of the samples, the sample containers will be placed

in a cooler with ice and maintained at approximately 4°C until received by the laboratory.

4. Strict chain of custody records will be maintained and included in the final closure report and an appendix.

Soil samples will be collected using a hand auger, hollow stem auger, or similar method. Prior to initiating collection activities and between each sample collection, a thorough decontamination cycle will be performed (as described in Section II.GG.13). All soil sample locations will be located by triangulation from known reference points to ensure reproducible sampling locations in the event that post-excavation compliance sampling is required.

Water samples will be collected using a method which minimizes the potential for cross-contamination. Wash water from the concrete pad will be collected and contained. A dedicated pump and hose will be used to remove water from the container, and for collecting rinse water samples. All materials employed for water sample collection will be thoroughly decontaminated prior to collection of each sample.

II.GG.5.c. Sampling Handing

All samples will be labeled to prevent misidentification in the field and at the laboratory. Sample labels will include at least the following information:

Site Name	Preservative
Sample Number	Type of Sample (Grab or Composite)
Name of Collector	Sample matrix
Date and Time of Collection	Analytical Method

Labels will be affixed to the sample containers prior to or at the time of collection, and will be filled out in indelible ink at the time of collection. Gummed paper seals will be used to prevent unauthorized tampering of samples following collection and up to the time of analysis. The seal will contain the identical information as appears on the sample label. The seal will be affixed in such a way that it is necessary to break the seal in order to open the sample container. Seals will be affixed to the sample containers before the samples leave the custody of sampling personnel. The shipping container will be sealed with custody tape. The chain-of-custody record for each given sample is to be completed before sampling is initiated by the same sampling team at other locations.

The sample will be placed in coolers and preserved according to EPA protocol while en-route to the laboratory for analysis. Chain-of-custody forms will be used to document the transfer of samples from the collector to the transporter to the analytical laboratory. All information and documentation pertinent to field sampling will be recorded in a field file or logbook. Sample locations will be marked on site plans and entered into the field file.

II.GG.5.d. Quality Assurance/Quality Control

In addition to strict adherence to this Closure Plan, field sampling QA/QC procedures will include the collection of Equipment Blanks, Trip Blanks, Field Blanks, and Field Duplicates. Equipment Blanks will be used to indicate whether incomplete decontamination of equipment or cross-contamination has occurred. Trip Blanks will accompany sample containers to and from the field. These QC samples will be used to detect any contamination or cross-contamination during handling and transportation. Field Blanks will be collected and analyzed to detect any contamination from sampling equipment or cross-contamination between sampling locations. Field Duplicate samples will be collected randomly side by side at the designated sampling locations. These QC samples will be analyzed by an independent, qualified laboratory and the results will be used to document any variances in analytical technique from the primary laboratory. Documentation of the QA/QC procedures and results will be conducted in accordance with EPA SW-846, Chapter 1, and submitted to VDEQ along with the closure certification.

II.GG.6. Data Quality Objectives

II.GG.6.a. Responsibility for Quality

Responsibility for compliance with data quality objectives falls on the remedial contractor to ensure that protocols for work are followed.

II.GG.6.b. Data Requirements

The data generated during closure activities will be used for determination of the need for further investigation, remedial alternatives, and/or closure.

II.GG.6.c. Analytical Method Selection

Analytical methods were selected based on the types of waste materials permitted for storage at the units. The methods to be used are listed in Exhibit II.GG-1.

II.GG.6.d. Detection Limits

NSWCDD will use a laboratory certified under the Department of Defense Environmental Laboratory Accreditation Program who will be contracted to provide analysis of soil samples. The lab will strive to achieve detection limits at or below the EPA Region III Risk Based Concentrations (RBC) for Residential Exposure Scenarios for each constituent. The Practical Quantitation Limits (PQLs) and the Method Detection Limits to be achieved by the lab will be determined at the time of closure and submitted to the VDEQ for approval. The contracted laboratory will attempt to obtain detection limits at or below the limits that are appropriately conservative and available at the time

of closure. Where PQLs below residential RBCs cannot be achieved using the best available laboratory technology, results will be evaluated in the context of other analytical data and site conditions.

Analysis of split samples should not have a relative percent difference (RPD) of greater than 100%. Repeat analysis of the same sample should have an RPD of less than 20%.

II.GG.6.e. Level of Quality Assurance Effort

Standard Analytical methods will be used and an independent data quality assessment will be performed. Quality assurance split samples will be analyzed by an independent laboratory.

II.GG.7. Mobilization and Set-Up

Before beginning any closure activities for Structures 353C, 951, and 952, NSWCDD will make preliminary preparations. These preparations will include, at a minimum, the following:

- Preparing and implementing the Site and Health Plan described in Section II.GG.11.c;
- Obtaining all required notifications and permits including utility marking;
- Defining and posting boundaries of the controlled remediation work area to prevent unauthorized entry; and
- Establishing decontamination and waste staging areas/locations.

No site closure activities will be initiated until all preliminary preparations are complete.

II.GG.8. Removal of Units Contents and Components

Prior to initiating closure activities, any hazardous waste will be removed from Structures 353C, 951, and 952 and either treated at the OB/OD units located at the EEA, Churchill Range or shipped to a permitted treatment, storage, and disposal facility for treatment. All storage pallets, racks, or other similar components will be dismantled and moved to the decontamination area to be decontaminated and/or sampled. Decontamination will be performed in accordance with Section II.GG.10 and all wastes will be sampled and analyzed in accordance with Section II.GG.11.b.

II.GG.9. Inspection of Structure Floor

When all debris has been removed, as described in Section II.GG.8, the floor of each Structure will be visually inspected by a Virginia registered Professional

Engineer. This inspection will search for free liquids, and/or stained areas that may indicate a potential release to the underlying soils. In the event that cracks, gaps, deteriorated construction or expansion joints, and any other routes or potential pathways of contamination migration to the soil below each Structure, NSWCDD will submit to VDEQ a diagram of the Structure indicating each fault. In addition, NSWCDD will submit for VDEQ review and approval a sampling plan to delineate the number of samples to be taken under the floor, along each identified fault. Each sample will be analyzed for the constituents, using the appropriate analytical methods as documented in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* or other approved method, that were stored in that Structure as listed in Exhibit II.GG-1. If NSWCDD determines that no potential pathways (from cracks and gaps) of contamination migration are identified during the visual inspection, then the engineer will certify that the Structure has “passed” inspection, NSWCDD will submit for VDEQ review and approval. The following section (II.GG.10) described the procedures to follow if the Structure “passes” inspection.

II.GG.10. Decontamination of the Structures

If no potential pathways of contamination are identified during the visual inspection described above, all drainage opening and/or vents will be sealed or otherwise made watertight.

1. Where applicable, physically remove the material from the sampling equipment by using a mechanical means such as a metal or nylon brushes, or high-pressure water.
2. Wash the equipment with a non-phosphorous detergent solution.
3. Rinse with tap water.
4. Rinse with distilled/deionized water.
5. Rinse with 10% nitric acid if the hazardous constituents to be analyzed include trace metals.
6. Rinse with distilled/deionized water.
7. Rinse with pesticide grade solvent (acetone or hexane) if the sample will be analyzed for trace organics.
8. Rinse with distilled/deionized water.
9. Air-dry the equipment completely.
10. After all visible residual material has been removed from the Structures, the rinse water will be analyzed (minimum of four samples) for all of

the constituents listed in Exhibit II.GG-1.

The floor of Structure 953, which is similar in age and construction to Structures 951 and 952 and has not been affected by any hazardous waste operations, will undergo the same cleaning procedures as above. The floor of either 353A or 353B, which is similar in age and construction to Structure 353C and has not been affected by any hazardous waste operations, will undergo the same cleaning procedures as above.

After the third rinse or until all visible residual material has been removed, the rinse water will be analyzed (minimum of eight samples) for all constituents listed in Exhibit II.GG-1. Rinse waters from Structure 953 will be used as the background standard for closure of Structures 951 and 952. Rinse waters from either Structure 353A or 353B will be used as the background standard for closure of Structure 353C. Background levels will be calculated as the upper CI of the mean of the rinse samples taken from Structures 953, 353A or 353B at a 95% confidence limit. It will be determined that decontamination has been achieved if the rinse water from Structures 951, 952 or 353C is below detection limits or the mean of the Structures 951, 952 or 353C rinse water is not greater than background levels for all constituents.

Parts of larger equipment that have come into contact with contaminated materials (i.e., backhoe bucket, jackhammer blade, etc.) will be rinsed as described above. Lesser equipment (i.e., scrapers, brooms, etc.) will either be rinsed as described above or will be disposed of as hazardous waste in accordance with VHWMR. Post-rinse water will be analyzed as described above to verify decontamination. All rinse waters with greater than background levels of contaminants will be disposed of as hazardous wastes in accordance with the VHWMR.

Decontamination of the equipment will occur in a temporarily constructed decontamination area. The area will be lined with an appropriate impermeable liner to prevent infiltration of the decontamination fluids into the soil. Liquids will be pumped into containers and disposed of in the appropriate manner based on the analytical results. At the end of the sampling event, the area will be cleaned.

The decontamination wastewater generated will be stored in clean containers in a designated area onsite. The decontamination wastewater will be managed and tested in accordance with the VHWMR and properly disposed. In the event that the floor and/or equipment cannot be decontaminated, the rinsing procedure will be repeated until decontamination can be verified, or until it is decided that decontamination cannot be achieved. If decontamination is not achieved the contaminated floor and/or any contaminated equipment will be removed as described below and managed as hazardous waste in accordance with the VHWMR.

If decontamination of the floor is not achieved or the soils beneath faults in the floor are contaminated, the floor will be removed and placed in containers for accumulation and eventual disposal as a hazardous waste in accordance with the VHWMR. No SW-846 analytical method is specified at this time. Should testing be required, the Permittee will use an alternate test method recommended by the chemical manufacturer, or another demonstrated method. Documentation regarding the test method used will be provided to the VDEQ to support such a determination. If VDEQ accepts this determination, decontamination of the floor will commence as described above.

The Explosive Hazardous Waste (EHW) will be transported to the NSWCCD Explosive Experimental Area (EEA) and either stored in one of the conditionally exempt (CE) storage units prior to treatment or taken directly to the OB/OD area and thermally treated.

II.GG.11. Closure Sampling and Analysis Plan

If the inspection as described in Section II.GG.9 “fails” or reveals that the integrity of containment for one or all of storage areas is in question, then the following soil sampling program will be implemented.

II.GG.11.a. Background Soil Sampling and Analysis

All background samples will be collected using EPA standard operating procedures.

A minimum of eight discrete sampling locations for background soil samples will be used. Background samples will be obtained from the surface layer, the 0-15 centimeter (0-6 inch) layer, the 15-30 centimeter (6-12 inch) layer, the 30-46 centimeter (12-18 inch) layer, and the 46-61 centimeter (18-24 inch) layer. These 8 background soil samples may be taken from an area unaffected by any facility operation, or background analytical data from a previous RCRA closure may be used.

The background soil sample locations will be selected by a qualified professional from the NSWCCD familiar with these closure procedures. NSWCCD will submit the preferred option and information concerning the location from which the samples were taken, soil strata, and depth of each sample will be submitted to VDEQ for review and approval per the closure schedule. If desired, VDEQ personnel may field-verify or revise the sample locations at the site.

Background samples will be labeled, collected, handled, preserved, and shipped in a manner identical to the closure compliance samples of the same mediums. All QA/QC procedures will be followed for the background samples. These samples

will be analyzed for the HCOCs, as listed in Exhibit II.GG-1, and in accordance with the requirements of SW-846. All sampling equipment will be decontaminated between samples to avoid cross-contamination at the various depths per requirements of II.GG.13. Location from which the samples were taken, soil strata, and depth of each sample will be submitted to VDEQ for review and approval per the closure schedule.

II.GG.11.b. Site Soil Sampling and Analysis

If the floor cannot be decontaminated, the floor of the Structures will be removed and the soil underlying the floor will be divided into eight (8) grids. One sample will be collected from each grid. These soil samples will be analyzed discretely (i.e., composites) for all constituents associated with the unit (see Exhibit II.GG-1 for list of constituents and analytical methods). Background levels will be calculated as the upper CI of the mean of the background samples at a 95% confidence limit. It will be determined that decontamination has been achieved if the unit soil samples are below detection limits or if the mean of the unit soil samples is not greater than background for any constituent associated with that unit.

If the unit soil samples from a grid show levels of contaminants statistically greater than background, then all of the soil within the grid area will be excavated to a depth of six (6) inches and disposed of in accordance with the VHWMR .

The soil within that grid will be resampled at the location found to be contaminated. If the statistical comparison determines that contamination is still present, the uppermost 6 inches of soil in the grid area will be excavated and disposed of in accordance with the VHWMR. This iterative procedure of sampling followed by excavation (if contamination is found) will be repeated until all contamination is removed, mean seasonal low groundwater level is reached, or it is determined that all contamination cannot be removed.

II.GG11.c. Site Health and Safety Plan

Prior to initiating closure activities, a site-specific Site Health and Safety Plan (Plan) will be developed that outlines procedures to be taken to protect the health and safety of the general public and persons involved with the closure activities. The Plan will be prepared and administered so that individuals participating in the closure activities will be knowledgeable of the potential hazards and specific safety precautions required. Development, implementation, and enforcement of the Plan will be the responsibility of the contractor performing the closure activities. All personnel participating in closure activities will be properly trained in accordance with the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response training program.

The Plan shall designate a qualified Site Health and Safety Officer to ensure that all

operations are performed in compliance with the required procedures of the Plan. The Plan shall include notification of the local fire, safety, and health response organizations, prior to starting the work and in the event of an emergency during the closure operations.

The Plan shall include site security procedures to prevent unauthorized entry into the controlled work area until closure is complete. It shall define the level of personal protective equipment required for persons involved in the closure work and for persons required to enter the controlled work area. The Plan shall also define the methods of monitoring atmospheric contamination and worker exposure levels. Finally, it shall

outline procedures and methods for worker and equipment decontamination. The Plan shall be developed in accordance with all applicable EPA and OSHA regulations and guidelines for worker protection. The following lists presents action items, considerations, topics, and other items that, at minimum, must be included in the Site Health and Safety Plan:

- Definition of a controlled work area barrier to prevent unauthorized entry.
- Notification of local fire, safety and health representatives to inform them of the scope of work prior to starting closure activities.
- Establishment of a single entry control point where all persons and equipment shall enter and exit the controlled work area, and where appropriate decontamination operations will be performed.
- A listing of required personal protection equipment (PPE) and procedures to raise or lower the level of protection as necessary.
- Procedures for monitoring ambient atmospheric levels in the immediate vicinity with an explosive or combustible gas meter at a frequency to ensure that they remain within allowable limits throughout the operation.
- Procedures for monitoring airborne concentrations of contaminants at the following locations; downwind at the perimeter of the controlled work area, upwind at the entry control point, in the immediate vicinity of the removal operations, and at locations representative of the workers' breathing zones.
- Equipment and personnel decontamination procedures.
- A list of personnel responsible for site safety, response operations, and protection of public health.
- Emergency medical care for injuries and toxicological problems.
- Routine and special training required for responders.
- A facility description including availability of resources such as roads, water supply, electricity, and telephone service.
- Establishment of procedures for protecting workers from weather-related problems.

The Plan will be consistent with NSWCCD Contingency Plan, and will be revised to address any additions and/or changed in planned activities.

II.GG.11.d. Clean Closure Decontamination Standards

According to the VDEQ Guidance for Closure Plans and Post-Closure Plans for Hazardous Waste Management facilities (September, 2001), in order to achieve “clean closure” of Structures 353C, 951, and 952 one of the following decontamination standards must be met.

- 1) Analytical non-detection - the concentrations of HCOCs in the compliance samples are below the method detection limits (MDLs) of the analytical test methods in the approved Closure Plan.
- 2) Comparison to background levels using a statistical method (Section II.GG.11.a) - the concentrations of HCOCs in the compliance samples are below or not statistically different from the background sample levels using the appropriate statistical methods and performance standards specified in the VDEQ guidance.
- 3) Risk Assessment Standards and Criteria (Exhibit II.GG-3) - the concentrations of the HCOCs in the compliance samples are at levels that meet the acceptable risk-based performance standards using the appropriate risk-based assessment criteria and standards specified in the VDEQ guidance. (The HCOCs do not pose an unacceptable risk to human health or the environment).

II.GG.12. Excavation of Contaminated Soil

Where soil samples exceed the cleanup standard, background, and/or health-based performance standard for any constituent, the impacted soil represented by that sample will be removed. The soil will be excavated to a depth at which the cleanup standard is achieved. Care will be exercised during excavation to avoid reaching groundwater levels.

Excavated soil will be handled in a manner that avoids potential cross-contamination of uncontaminated areas. Therefore, excavated soil will be immediately placed into lined containers with suitable covers. The containers will be large enough so that the excavation equipment will not overshoot the containers and will be placed immediately adjacent to the excavation zone. Once filled, the soil in the containers will be sampled, characterized and disposed of in accordance with Section II.GG.14. Until sample results are available, all waste materials generated during closure activities will be considered hazardous waste and appropriately labeled. Once containers are properly labeled, the facility has 90 days to either move the containers to a permitted storage facility or dispose of the material at a permitted off-site facility. Any excavated areas will be filled with clean soil following VDEQ approval of clean closure.

II.GG.13. Decontamination of Personnel and Equipment

Prior to the initiation of closure work, personnel and equipment decontamination areas and facilities will be established and constructed adjacent to and contiguous with the

work area.

The decontamination area will be large enough to facilitate equipment and worker decontamination activities. The decontamination area will be constructed to allow wash water from the decontamination operations to be collected to properly contain the wash water. Three separate segments, lined with an impermeable barrier, will be established

within the decontamination area to control and collect wash water. These areas will be for cleaning, rinsing, and final rinsing of closure equipment and personnel.

A waste staging and decontaminated equipment holding area will be designated immediately adjacent to the decontamination area. Small equipment (e.g., tools, sampling equipment, shovels) that has undergone decontamination, along with containers of waste material incidental to the decontamination work will be stored at these locations awaiting laboratory analysis results and appropriate disposition. Laboratory analysis turnaround times will be as expedient as possible, but in no case will any waste be accumulated on site for longer than 90 days.

All wash water resulting from decontamination operations will be contained, sampled, and analyzed in accordance with Section II.GG.14. If proper decontamination of equipment cannot be achieved, it will be characterized and disposed of in accordance with Section II.GG.14. At the conclusion of the closure work, the decontamination area will be dismantled, properly characterized and disposed of in accordance with Section II.GG.14.

II.GG.14. Waste Analysis and Disposal

Wastes that are anticipated to be generated during this closure include:

- aqueous waste- water generated by equipment, personnel, and structure decontamination;
- non-aqueous waste - soil, plastic sheeting, disposable equipment; and
- stored hazardous waste containers remaining at initiation of closure.

II.GG.14.a. Aqueous Waste Characterization

During the closure work, aqueous wastes generated from decontamination and cleaning operations will be immediately placed into 55-gallon drums and moved to a designated staging area for storage and analysis. The waste will be stored on site until all laboratory analytical results and decontamination operations are finalized.

Samples will be collected from the drums and analyzed for listed waste and for the characteristics of hazardous waste (i.e., ignitability, corrosivity, reactivity, and toxicity) prior to disposal as outlined in 9 VAC 20-60-261. Analysis for toxicity by TCLP will be

limited to the analytes presented in both Exhibit GG-1 of this plan and Table 1 of 9 VAC 20-60-261.24.

Laboratory analysis turnaround time will be as expedient as possible from the submittal of samples. If the waste is classified as hazardous, it shall be properly transported and disposed of within 90 days.

II.GG.14.b. Non-aqueous Waste Characterization

Excavated soil will be placed into lined roll-off containers, covered, and moved to a designated staging location to be sampled and stored pending disposal. The waste will be stored on site until all laboratory analytical testing is completed.

One composite soil sample will be collected from each container and analyzed for listed waste and for the characteristics of hazardous waste (i.e., ignitability, corrosivity, reactivity, and toxicity) prior to disposal as outlined in 9 VAC 20-60-261. Analysis for toxicity by TCLP will be limited to the analytes presented in Exhibit GG-1 of this plan.

If proper decontamination of the equipment used during the closure work cannot be achieved, then it will be characterized for disposal.

II.GG.14.c. Waste Transportation and Disposal

Hazardous and solid waste handlers will require testing information to satisfy land disposal restrictions and/or compliance with the receiving landfill's permit conditions. The accepting hazardous waste treatment, storage, and disposal (TSD) facility may perform confirmatory testing on the incoming waste. If the representative sample from the waste container is found to be hazardous, then the container must be transported to a RCRA permitted hazardous waste TSD facility by a permitted hazardous waste transporter. Otherwise, the waste may be disposed of in accordance with 9 VAC 20-80-10.

The transporter of hazardous waste will be a Virginia-permitted hazardous waste transporter. The waste will be appropriately manifested and transported to an authorized hazardous TSD facility. The transporter, and the receiving facility will possess the required EPA Identification Numbers. Before transporting hazardous waste or offering hazardous waste for transport, NSWCD staff or a contractor will package and label the waste in accordance with 9 VAC 20-60-262.

The disposal of wash water may consist of discharge to a publicly-owned wastewater treatment facility (POTF) that is permitted under the Clean Water Act regulations to accept the constituents found in the wash water. Prior approval will be obtained before

the wash water is discharged to a POTF or collecting wash water in drums and properly disposing of the water based on analytical testing.

II.GG.15. Schedule for Closure

When circumstances dictate that NSWCDD will no longer receive or store EHW, NSWCDD will provide a formal intent to begin final closure of one or all of the units to the Director. This notification will be submitted at least 45 days prior to the date on which closure is expected to commence. The schedule for closure will comply with 9 VAC 20-6-264.

NSWCDD expects the requirements to fully close Structures 353C, 951, and 952 to be minimal as liquids are not stored and containers used for storage are in good condition. If it is determined that a corrective action plan, contingent closure, including landfill-cap installation, long-term groundwater monitoring, and post-closure care of any unit, is to be implemented at this site, a closure plan will be modified to include an appropriate schedule of activities necessary to complete compliance for corrective action, contingent closure, including landfill-cap installation, long-term groundwater monitoring, and post-closure care. This schedule will also include any other activities necessary to complete final closure.

Within 60 days of the completed closure, NSWCDD will submit in writing a closure certification to the Director. The certification will verify that the EHW storage units were closed in accordance with the specifications outlined in the approved closure plan, including, if applicable, the completion of all corrective action measures. The certification will be signed by an authorized official of NSWCDD, and an independent professional engineer registered in Virginia. Documentation supporting the engineer's certification will be furnished to the Director. Attached is a copy of an example of the certification. (Exhibit II.GG-3).

II.GG.15.a. Time Allowed for Closure

TIMETABLE OF CLOSURE ACTIVITIES		
TASK	Closure Activity	Days to Complete
1	Receive, store, and remove final volume of waste	0 to 10
2	Submit schedule for closure	10 to 20
3	Contact(s) for closure activities (e.g., decontamination of structures, disposal, sampling)	20 to 80
4	Field mobilization	80 to 85
5	Conduct closure activities	85 to 130
6	Demobilization	130 to 135
7	Submit closure report/certification	135 to 180

II.GG.15.b. Extension of Closure Time

NSWCDD does not anticipate a need for an extension of closure time. However, if the closure schedule will exceed the 180 days, NSWCDD will submit a request or petition for an extension of the closure time to the Director for consideration at least 30 days prior to the existing deadline of closure period. This petition will identify the need for the extension, the status of the units, and the actions required to prevent threats to the environment or human health during the extension period. NSWCDD must submit a written notification request for a modification of the approved closure plan to the Director in accordance with the application procedures in 40 CFR Parts 124 and 270. The written request will include a copy of the amended closure plan for review and approval by the Director.

The closure plan should specify that amendment of the closure plan will be in accordance with the requirements of the regulations under 40 CFR Part 264, Subpart H, §264.112. This regulations specify the following requirements:

1. The written notification or request to the Director, must include a copy of the amended closure plan for review and approval.
2. The owner or operator must submit a written notification or a modification request to the Director, to authorize a change in the approved closure plan whenever the following occurs:
 - Changes in operating plans or facility design after the closure plan.
 - There is a change in the expected year of closure.

- In conducting partial or final closure activities, unexpected events require a modification of the approved closure plan.
- 3. The owner or operator must submit a written request for a permit modification including a copy of the amended closure plan for approval at least 60 days prior to the proposed change in facility design or operation, or no later than 30 days after an unexpected event has occurred which has affected the closure plan.

If an unexpected event occurs during the partial or final closure period, the owner or operator must request a modification no later than 30 days after the unexpected event.

The Director will approve, or disapprove, or modify the amended plan in accordance with the procedures in Parts 124 and 270.

In accordance with the authority under §264.112(c)(4), the Director may request modifications to the closure plan under the conditions described in § 264.112 (c)(2).

If amendment of the closure plan is required to close a HWMU with hazardous waste “closed in-place,” the facility is required to close the HWMU in accordance with the closure requirements of a landfill. In these circumstances, the closure plan will need to be modified or amended to reflect the closure requirements of a landfill and a post-closure plan must be developed to comply with the post-closure care requirements specified under §264.310.

II.GG.16. Certification of Closure

The VHWMR and the RCRA regulations, under 40 CFR 264, § 264.115, Certification of Closure, requires that NSWCDD must submit to the Director, by registered mail, a certification that the hazardous waste management facility has been closed in accordance with the specifications in the approved closure plan. The certifying engineer will perform whatever duties are necessary in order to verify that closure has been conducted in accordance with the approved closure plan. If the engineer needs to expand the necessary activities, he/she will notify the Safety & Environmental Director. The certification must be signed by the owner or operator and by an independent professional engineer registered in the Commonwealth of Virginia. The signed original certification must be submitted to the Director within sixty (60) days after closure is complete for each unit and will include the signatures of the owner, operator, and the certifying engineer. In accordance with VHWMR 9 VAC 20-60-264 and 40 CFR 264.115, documentation supporting the engineer's certification will be available upon request until the closure certification is accepted by VDEQ. The certification of closure by the owner/operator and the professional engineer will be in accordance with the requirements of the VHWMR under 9 VAC 20-60-12030.D, and will be signed, dated, include the title of the person certifying the closure, and include the certification text that is specified within the regulations. All analytical data, documentation of all quality assurance/quality control (QA/QC)

procedures required by SW-846, and facilities are exempt from the requirements of preparing a post-closure cost estimate. The certification of closure will be submitted by registered mail to VDEQ within 60 days of completion of closure within the Closure Report. At minimum, the Closure Report documents closure activities, including the following:

- A summary of major field activities;
- An explanation of modifications and variances from the VDEQ approved Closure Plan;
- Complete analytical results including QA./QC data from the laboratory;
- Statistical analyses;
- Risk-based assessment;
- Results and conclusions;
- A copy of all waste manifests; and
- A certification of closure signature form.

An example of the certification of closure signature form is presented in Exhibit II.GG-2. The certificate and closure report will demonstrate that closure of this site was accomplished in accordance with the closure performance standards and the decontamination standards discussed in this Closure Plan.

II.GG.17. Closure Cost and Schedule

Federal facilities are exempt from the closure financial requirements pursuant to 9 VAC 20-60-264 and 40 CFR 264.110.

If the facility's permit is terminated, or if the facility's permit is otherwise ordered, by judicial decree or Order of the Board, to cease receiving hazardous waste, the container storage areas will be closed in accordance with the deadlines established in 9 VAC 20-60-264, 40 CFR 264.113, and II.GG.15.a.

II.GG.18. Closure Plan Amendment

NSWCDD anticipates being able to achieve “clean closure” of Structures 353C, 951, and 952. However, if a contingent closure, including landfill-cap installation, long-term groundwater monitoring, and post-closure care of this site, is to be implemented at this site, a Closure Plan amendment accommodating contingent closure will be submitted to the VDEQ for review and approval as per 9 VAC 20-60-264, Subpart G.

II.GG.19. Closure Report

In support of the closure activities, a closure report will be submitted with the certifications. This closure report will contain all pertinent descriptions and

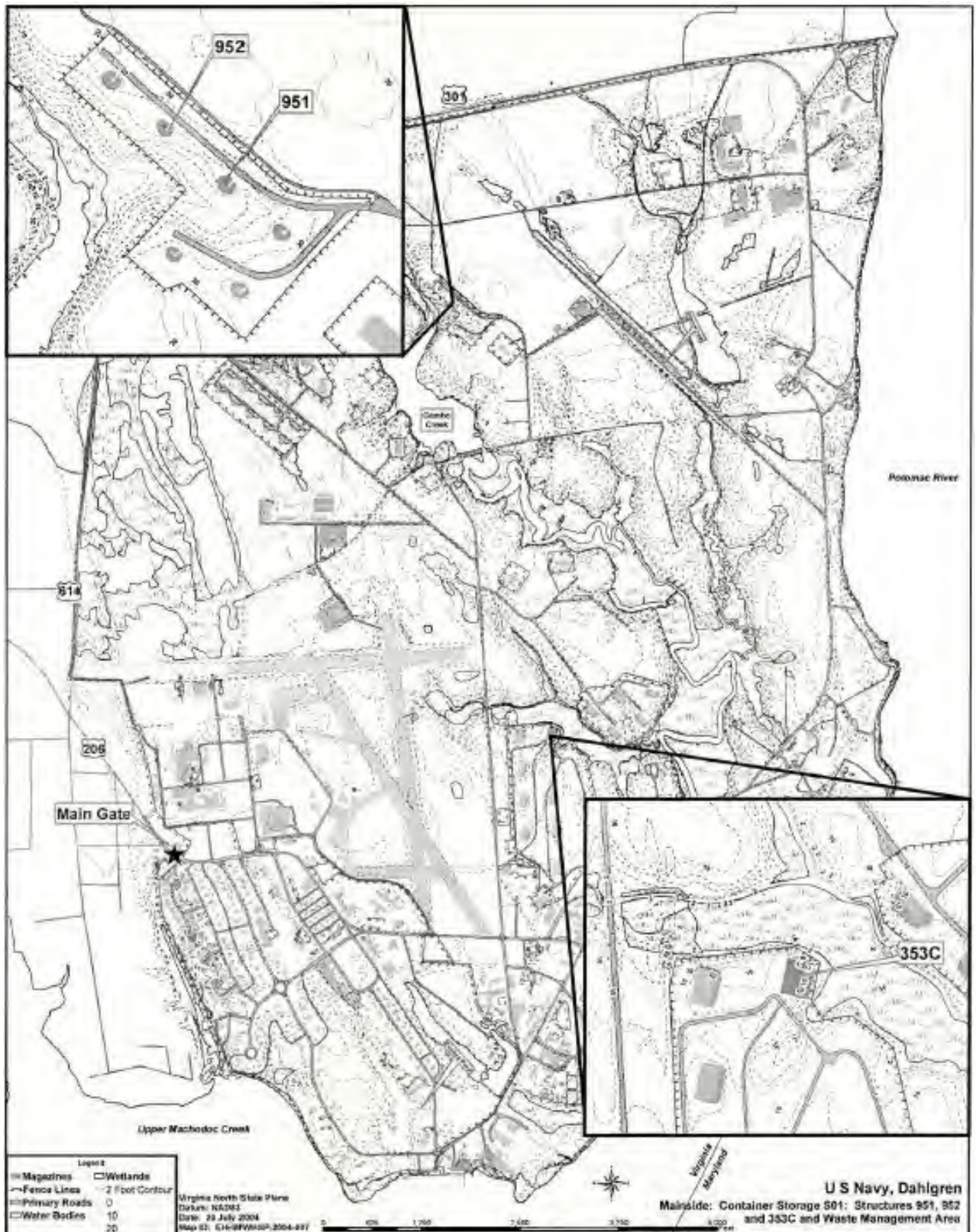
documentation demonstrating that the closure has been performed in accordance with this plan. The report shall contain, at a minimum, the following information:

1. Certifications of Closure Statements of the owner/operator and the Professional Engineer (P. E.)
2. A summary of closure procedures and activities completed during decontamination and closure of each HWMU. The summary should include sufficient summary and detailed information from the approved closure plan. The closure report should refer the reader to the approved closure plan, when needed.
3. Documentation of HWMUs waste inventories have been removed and disposed to a regulated treatment storage or disposal (TSD) facility. Copies of manifest records shipment to a regulated TSD needs to be provided in an appendix.
4. Documentation of management and characterization of all wastes generated during closure activities in accordance with closure plan and the regulations. Copies of manifest records of the disposal of all closure generated wastes to a regulated TSD, solid waste disposal facility, or facility regulated under the Clean Water Act, as appropriate.
5. Documentation of the sampling locations in the text and figures that correspond with the sample identities and information provided in the text, tables, and laboratory reports.
6. Documentation of the vertical and horizontal extent of excavation in both the narrative text and in figures, if applicable. The depth to clean soil samples, etc., will be demonstrated.
7. Documentation of all sampling analytical tests data, QA/QC plan, QA/QC procedures, and the QA/QC data.
8. Summary tables of all sampling data results to support the closure findings and conclusions.
9. A discussion and summary of QA/QC procedures, data results, implications, findings, and conclusions.
10. All statistical analyses and calculations supporting the closure conclusions.
11. All risk-based assessment calculations, summary tables, and evaluations, findings, and conclusions. Supporting risk-based information and calculations should be provided in the Appendices.
12. Appendices that include all sampling and chain-of-custody documentation, laboratory data sheets and certifications for all compliance, background, and QA/QC samples.
13. If NSWCD is subject to closure under industrial/occupational scenario, or if NSWCD achieves "closure in-place," a signed Notice of Limitation should also be included in the closure report. A copy of the Notice of Limitation statement is included in the Guidelines for developing Risk-Based Cleanup Goals using Risk

Assessment at Hazardous Waste Site Facility for Restricted Industrial Use (DEQ,
June 1995).

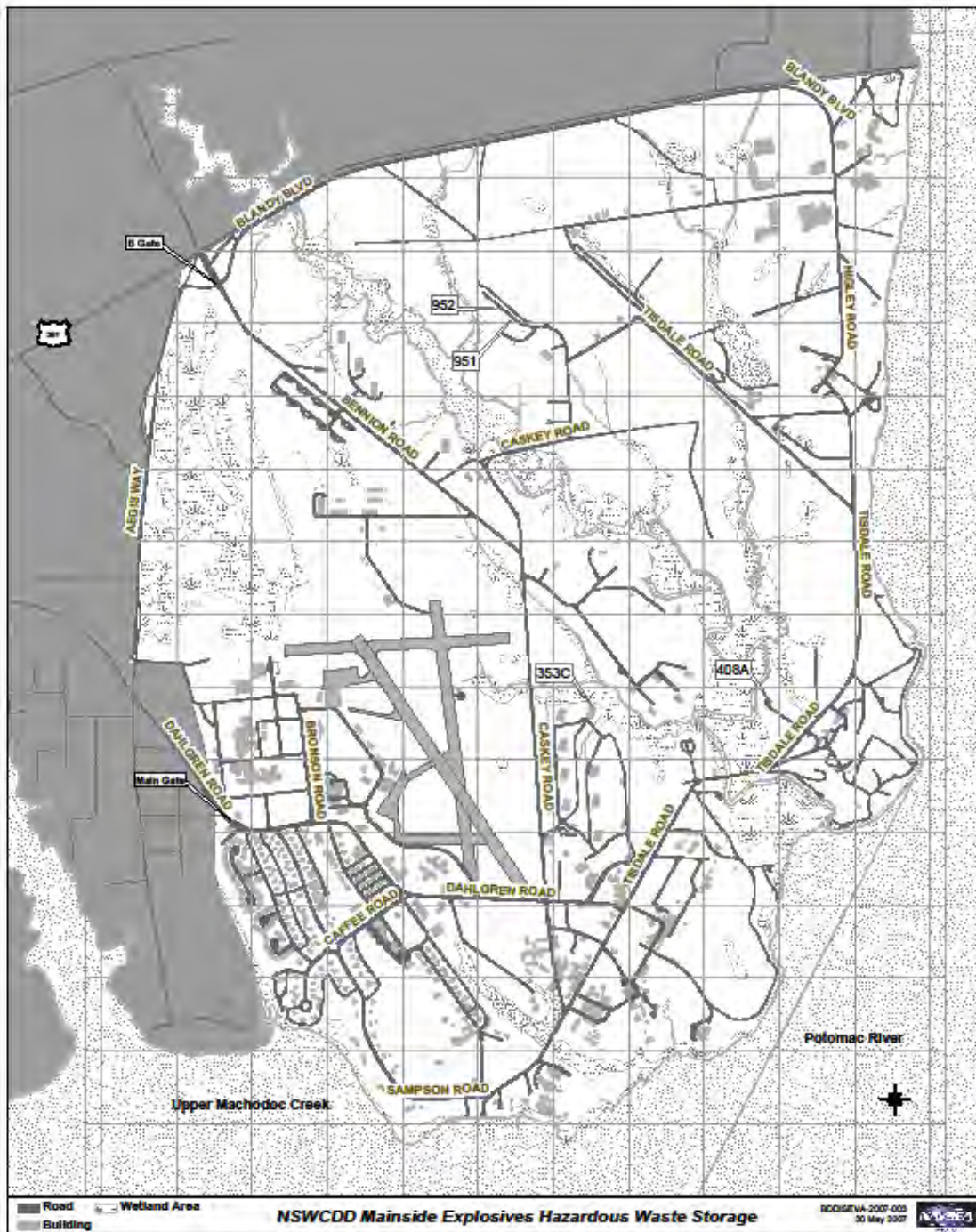
Topographic Map of Structures 353C, 951 and 952

Topographic Map of Structures 353C, 951 and 952



Mainside Explosives Hazardous Waste Storage Facilities
Structures 353C, 951, and 952 (Permitted Facilities)
Structure 408A (Conditionally Exempt)

**Mainside Explosives Hazardous Waste Storage Facilities
Structures 353C, 951, and 952 (Permitted Facilities)
Structure 408A (Conditionally Exempt)**



EEA Explosive Hazardous Waste Storage Structures
Structures 9481, 9482, 9483, 9484, 9485, 9486, and 9487
(Conditionally Exempt)

EEA Explosive Hazardous Waste Storage Structures
Structures 9481, 9482, 9483, 9484, 9485, 9486, and 9487 (Conditionally Exempt)



Constituents and Analytical Method

Constituents and Analytical Method

Constituent	Analytical Method (SW-846)
Aluminum	6010B
Barium	6010B
Cadmium	6010B
Calcium	6010B
Chromium	6010B
Lead	6010B
Mercury	6010B
Silver	6010B
Ammonium Nitrate	*
Ammonium Picrate (Explosive D)	*
1,2-Benzenediol	*
Cyclomethylenenitramine (RDX)	8330
Cyclotetramethylene Tetranitramine (HMX)	8330
2,4-Dinitrofluorene	8330
Diphenylamine	8270C
Nitrobenzene	8330
Nitrocellulose	*
Nitroglycerine	8332
Nitroguanidine	*
Pentaerythritol Tetranitrate (PETN)	8330
N-tetranitro-N-methylaniline (Tetryl)	8330
Tetranitromethane	*
2,4,6-Trinitrotoluene	8330

EXHIBIT II.GG-2

VDEQ Risk-Based Closure Guidance

RISK-BASED CLOSURE

1. Introduction

This document discusses the protocol for conducting a risk assessment to implement closure of hazardous waste management unit (HWMU) in accordance with Title 9 of the Virginia Administrative Code, Section 20-60-10 et seq. (Formerly the Virginia Hazardous Waste Management Regulations).

1. Risk-Based Evaluation.

In order to estimate the risk for chemicals of concern (COCs) a risk assessment will be conducted according to the Virginia DEQ document titled "Guidance for development of health based cleanup goals using decision tree/REAMS program (herein after "Virginia Risk Guidance") (November 1, 1994) prepared by Old Dominion University and the approved closure plan. The risk assessment report will contain the following sections:

- ☐ site evaluation,
- ☐ development of a site conceptual model,
- ☐ identification of contaminants of concern,
- ☐ identification of media and exposure pathways,
- ☐ toxicity assessment,
- ☐ estimation of contaminant concentration at the point of exposure, and
- ☐ summary of health risks.

The submission instructions contained in Appendix IX of the Virginia Risk Guidance will be reviewed prior to submitting the report to confirm that all necessary risk issues have been addressed. The risk goals/performance standards will be a hazard index of 1.0 for non-carcinogens and an individual carcinogenic risk of 1E-06 and cumulative carcinogenic risk of 1E-04.

Compliance with the closure standard will be verified by comparing the calculated individual and cumulative risk/hazard for all the contaminants of concern (COC) that failed background comparison to the risk-based performance standards.

The risk assessment will be conducted assuming a future residential/industrial use of the property. The methodology/equation for estimating the exposure concentration is presented in subsequent sections.

The initial step in the risk assessment will be to develop a site conceptual exposure model (SCEM) which depicts all potential exposure routes and media for the site and the receptors which may be exposed. The procedure for identification of contaminants of concern for health based is presented in section 2, Identification of Contaminants of Concern.

Once the SCEM is completed, the exposure assumptions outlined in the Virginia Risk Guidance will be employed to estimate the health risks and develop a cleanup criteria. Information will also be

taken as needed from U.S. EPA documents and databases (e.g., the Risk Assessment Guidance for Superfund (RAGS), and the Integrated Risk Information System (IRIS)). The chemical intake

equations and exposure parameter assumptions used to calculate estimate risks (obtained from Virginia risk assessment guidance/REAMS) are shown in Tables 1 through 4. Additional details on the approach and assumptions used for each potential exposure pathway are provided below.

As a part of the Risk Exposure and Analysis Modeling System (REAMS) evaluation, fate and transport modeling is necessary to demonstrate that the residual soil concentrations of contaminants of concern would not result in contamination of other environmental media of concern including the groundwater underneath the closure unit. For this purpose, representative soil sample(s) will be collected around the unit (subjected to closure) for analysis of the properties listed on page 62 of the REAMS document. [It is often less expensive to obtain this information from an agriculture lab rather than from an environmental lab]. In certain situations, groundwater sampling may be preferable.

2. Identification of Contaminants of Concern

Contaminants of concern includes those constituents detected during the closure soil and groundwater sampling which may be related to past waste management practices and whose concentrations statistically exceeded background levels. Please note that if the concentration of contaminants detected in the soil and groundwater did not exceed the background levels, no further risk-based evaluation will be required. Only those constituents of concern having concentrations that are statistically greater than background concentrations will be subject to REAMS evaluation to estimate the risks.

Also, for the purpose of evaluating the impact to groundwater, only those constituents which statistically exceeded the upgradient or background well concentration will be subjected to REAMS evaluation.

3. Exposure Assessment

The exposure assessment will identify transport mechanisms for the contaminants of concern that may potentially impact human receptors. The results of this assessment will be used to document the current and future exposure potential posed by the site.

With regard to soil, the following exposure assumptions will apply. Initially, a residential exposure will be assumed for the purpose of attempting to document unrestricted closure of the soil. If the risk for potential residential exposure does not exceed the performance standards, unrestricted closure of soil will be documented/accepted. If the site cannot be clean closed for residential use, then the option to pursue restricted closure (commercial/industrial) will be exercised. Closure to commercial/industrial scenario will requirement the facility to enact a deed restriction that eliminates the possibility of future residential use of the site. The requirements for establishing such a deed

restriction are detailed in VDEQ's Guidelines for Developing Health-Based Cleanup Goals Using Risk Assessment at A Hazardous Waste Site Facility for Restricted Industrial Use, dated June 1995.

Exposure routes will include ingestion, dermal absorption, and inhalation of vapors and dust particles. With regard to groundwater, REAMS fate and transport modeling¹ will be required to assess residual soil contamination impacts to the groundwater. If the groundwater does not qualify for clean closure, the scope of future groundwater monitoring will be discussed with VDEQ. The groundwater exposure routes to be evaluated include ingestion, dermal absorption, and inhalation of volatiles emitted from the contaminated groundwater.

The exposure assumptions presented in the following sections are based on residential exposure. These constitute a reasonable maximum exposure scenario (RME), an exposure which is unlikely to occur but is reasonably possible. The exposure pathways for residential exposure include ingestion of soil, dermal contact with soil, inhalation of resuspended soil particulates, and inhalation of volatile organic compounds. Exposure to groundwater at the site will be evaluated.

3.1.1 Ingestion of Soil

The equation for potential chemical intake by soil ingestion for residential scenario on site is included in Table 1. This scenario also assumes that weather or other conditions (e.g., frozen ground/ snow /other cover) do not affect exposure and that all soil ingested is from contaminated areas of the site. These assumptions are protective of human health and the environment.

3.1.2 Dermal Contact with Soil

The equation for calculating the potential absorbed chemical dose by dermal contact with contaminated soil is provided in table 1. This scenario assumes that weather or other conditions (e.g., frozen ground/ snow or other cover) do not affect exposure, that contaminated soil remains on the skin long enough for the COCs to be absorbed and that all soil adhering to the skin is from contaminated areas of the site.

¹ REAMS includes the unsaturated zone fate and transport model SESOIL. The purpose of running the model is two fold: a) determine whether the contaminants will reach the groundwater table in next 30 years. b) calculate the risk associated with the estimated concentration in the groundwater. For constituents with a promulgated MCL, the estimated concentration will be directly compared against the MCL. However, prior to running the SESOIL model the facility should obtain all the information identified on page 62, of the Virginia guidance document. The closure report must include evaluation of model results (concentrations reaching the groundwater) and a copy of SESOIL output file.

The skin surface areas (SA) used in the dermal pathway have been identified in REAMS guidance as 4,860 cm² for adults, which is the 50th percentile value for the arms, hands and lower legs (U.S. EPA, 1989b - See Attachment A).

A skin-soil adherence factor of 1.45 mg/cm² will be used in the dermal intake calculations. The U.S. EPA guidance for dermal exposure assessment (*Dermal Exposure Assessment: Principles and Applications*, EPA/600/8-91/011B) states that a range of values from 0.1 mg/cm² to 1.5 mg/cm² per event appear possible for dermal adherence factors (AF). In order to estimate the amount of a particular COC which may potentially be absorbed through the skin, chemical-specific dermal absorption factors (ABS_{derm}) are used.

3.1.3 Inhalation of Resuspended Soil

The equation for potential chemical intake by inhalation of resuspended contaminated soil is included in Table 1. An inhalation rate of 0.83 m³/hr will be used as specified in the Virginia Risk Guidance. This scenario assumes that the concentration of COCs in indoor dust will be equal to that in outdoor soil and that weather or other conditions, (e.g., frozen ground/snow or other cover) do not affect resuspension or exposure.

However, an appropriate model or equations in table-1, will be used to estimate the potential amount of respirable particulate matter generated by wind erosion. The estimated generation rate for eroded particulate matter will then be used derive an ambient air particulate concentration. Documentation for these models will be presented to the Department.

3.1.4 Inhalation of Volatilized COCs in Soil

Since the COCs have appreciable vapor pressures, they are expected to volatilize from soil. Inhalation of COCs as volatilized vapors is considered for this risk assessment. The equations in Table-1 will be considered for estimating the intake for this condition.

4. Toxicity Assessment

The two principle indices of toxicity used in risk assessment are the reference dose (RfD) and the cancer slope factor (SF). An RfD is the intake or dose per unit of body weight (mg/kg-day) that is unlikely to result in toxic (non-carcinogenic) effects to human populations, including sensitive subgroups (e.g., the very young or elderly). The RfD allows for the existence of a threshold dose below which no adverse effects occur.

The SF is used to express the cancer risk attributable to a discrete unit of intake; that is, the cancer risk per milligram ingested per kilogram of bodyweight per day ($[\text{mg/kg-day}]^{-1}$). The SF is an estimate of the upper-bound probability of an individual developing cancer as a result of exposure to a particular carcinogen. Unlike the RfD, the SF assumes that there is no threshold dose below which the probability of developing cancer is zero. Note that SFs are only developed for those chemicals which have been shown to be carcinogens in man or in at least several animal species. A carcinogenic weight of evidence rating is used to describe the strength of the experimental evidence for carcinogenicity. The U.S. EPA has developed SFs for most chemicals with weight of evidence ratings of "A" (known human carcinogen) or "B" (probable human carcinogen).

RfDs and SFs are derived by the U.S. EPA for the most toxic chemicals generally associated with chemical releases to the environment for which adequate toxicological data are available. If both the carcinogenic and non-carcinogenic effects of a particular compound are significant, both values may be established. However, in most cases only one value is available.

4.1 Inhalation and oral RfDs and SFs -

SFs pertinent to the oral and inhalation exposure pathways will be obtained from U.S. EPA's IRIS database. The IRIS (Integrated Risk Information System) on-line database was established by the U.S. EPA to provide risk assessors with peer reviewed toxicological data on chemicals commonly encountered at environmental sites of contamination. If data is not available from IRIS, it will be obtained from the Health Effects Assessment Summary Tables (HEAST), a compilation of toxicity values produced by the USEPA on a quarterly basis. The hierarchy presented in Appendix III of Virginia Risk guidance will be followed for using these sources.

4.2 Dermal RfDs and SFs -

Chemical specific oral-route absorption values (ABS_{oral}) are used to adjust the oral RfD or SF, which is computed from an administered dose, for use in the dermal exposure pathway. This correction is necessary due to the differences in absorption between the skin and the gastrointestinal tract. By correcting the administered-dose oral RfD or SF for the fraction expected to be absorbed in the gut, a dermal absorption factor can be used to estimate the correct dose received through the skin.

5. Evaluation of Risks

Using the toxicity criteria and identified exposure pathways discussed above, and the procedures described in the VDEQ guidance document (REAMS, November 1994), the risks presented by the COC will be estimated. The estimated risks will consider the effects from multiple constituents and

all routes of exposure. The risk goals will be a total cumulative hazard index of 1.0 for multiple noncarcinogens and a total cumulative carcinogenic risk of 1E-04 for multiple carcinogens. However, the risk from each individual carcinogen shall not exceed 1E-06 (i.e., one case of cancer per 1,000,000 population).

5.1 Estimation of exposure concentration

For the contaminants detected at the site, an exposure point concentration (EPC) for each exposure pathway will be calculated for each contaminant by estimating the 95th upper confidence limit (UCL) on the arithmetic mean of the concentrations. If the calculated 95th UCL is greater than the maximum detected concentration, then the maximum detected concentration will be used as the EPC. The risks for contaminants will be calculated as per the equations and assumptions described in Table 1 through Table 4. If for a contaminant both carcinogenic and noncarcinogenic risk-based cleanup goal exists, the lower of the two will be used as a pathway specific to estimate the risk.

5.2. Risk Estimation

Health risk assessments are based on the relationship between risk, dose and toxicity:

$$Risk = Dose * Toxicity$$

Since dose is the product of the contaminant concentration multiplied by exposure (the intake), equation (1) becomes:

$$Risk = Intake\ rate * Contaminant\ conc. * Toxicity$$

(Please note that the term CDI in attached tables 1-4, includes intake rate and contaminant conc)

To estimate the intake, the exposure equations and assumptions discussed in Section 1, are used. The intake estimates for each route of exposure are then combined with the RfDs or SFs to determine the resulting risk.

For Carcinogens Risk:

$$Cancer\ Risk = (Intake_{oral} * Cont.conc. * SF_{oral})$$

$$+ (Intake_{inhal} * Cont.conc. * SF_{inhal}) + (Intake_{derm} * Cont.conc. * SF_{derm})$$

For Noncarcinogens:

$$Hazard\ Index = (Intake_{oral} * Cont.conc. * \frac{I}{RfD_{oral}}) + (Intake_{inhal} * Cont.conc. * \frac{I}{RfD_{inhal}}) \\ + (Intake_{derm} * Cont.conc. * \frac{I}{RfD_{derm}})$$

where, taking into account all COCs and relevant exposure pathways, the excess cancer risk is 10^{-6} or the hazard index is 1.0.

Using REAMS software a maximum acceptable contaminant concentrations will be calculated which meets the cumulative risk criteria. This process will be used in this risk assessment to derive the health-based cleanup criteria for the site. If the estimated risks satisfy the risk based performance standards, the soils/groundwater will be considered clean closed.

Table 1

Risk Assessment Algorithm for Carcinogenic Exposure

<u>Exposure Route</u>	<u>Chronic Daily Intake (CDI), mg/L-day</u>	
	<u>Residential Exposure</u>	<u>Occupational/Industrial Exposure</u>
Ground Water		
Ingestion	$\frac{CW \times IRW_{adj} \times EF}{AT_c}$	$\frac{CW \times IRW_a \times EF_o \times ED_o}{BW_a \times AT_c}$
Inhalation	$\frac{CW \times IRA_{adj} \times EF \times K}{AT_c}$	$\frac{CW \times IRA_a \times EF_o \times ED_o \times K}{BW_a \times AT_c}$
Dermal	$\frac{CW \times SAW_{adj} \times PC \times ET \times EF \times CF}{AT_c}$	$\frac{CW \times SAW_a \times PC \times ET \times EF_o \times ED_o \times CF}{BW_a \times AT_c}$
Soil		
Ingestion	$\frac{CS \times IRS_{adj} \times CF \times FI \times EF}{AT_c}$	$\frac{CS \times IR \times CF \times FI \times EF_o \times ED_o}{BW_a \times AT_c}$

Dermal	$\frac{CS \times CF \times SAS_{adj} \times AF \times ABS \times EF}{AT_c}$	$\frac{CS \times CF \times SAS_a \times AF \times ABS \times EF_o \times ED_o}{BW_a \times AT_c}$
Inhalation of vaporizing VOCs from soil	$\frac{CS \times 1/VF \times IRA_{adj} \times ET \times EF}{At_c}$	$\frac{CS \times 1/VF \times IRA_a \times ET \times EF_o \times ED_o}{BW_a \times AT_c}$
Inhalation of emitting particles from soil	$\frac{CS \times 1/PEF \times IRA_{adj} \times ET \times EF}{AT_c}$	$\frac{CS \times 1/PEF \times IRA_a \times ET \times EF_o \times ED_o}{BW_a \times AT_c}$

Table 2

Risk Assessment Algorithm for Non-carcinogenic Exposure

<u>Exposure Route</u>	<u>Chronic Daily Intake (CDI), mg/L-day</u>	
	<u>Residential Exposure</u>	<u>Occupational/Industrial Exposure</u>
Ground Water		
Ingestion	$\frac{CW \times IRW_c \times EF \times ED_c}{BW_c \times AT_n}$	$\frac{CW \times IRW_a \times EF_o \times ED_o}{BW_a \times AT_n}$
Inhalation	$\frac{CW \times IRA_c \times EF \times ED_c \times K}{BW_c \times AT_n}$	$\frac{CW \times IRA_a \times EF_o \times ED_o \times K}{BW_a \times AT_n}$
Dermal	$\frac{CW \times SAW_c \times PC \times ET \times EF \times ED_c \times CF}{BW_c \times AT_n}$	$\frac{CW \times SAW_a \times PC \times ET \times EF_o \times ED_o \times CF}{BW_a \times AT_n}$
Soil		
Ingestion	$\frac{CS \times IRS_c \times CF \times FI \times EF \times ED_c}{BW_c \times AT_n}$	$\frac{CS \times IRS_a \times CF \times FI \times EF_o \times ED_o}{BW_a \times AT_n}$

Dermal	$\frac{CS \times CF \times SA_c \times AF \times ABS \times EF \times ED_c}{BW_c \times AT_n}$	$\frac{CS \times CF \times SA \times AF \times ABS \times EF_o \times ED_o}{BW_a \times AT_n}$
Inhalation of vaporizing VOCs from soil	$\frac{CS \times I/VF \times IRA_c \times ET \times EF \times ED_c}{BW_c \times AT_n}$	$\frac{CS \times I/VF \times IRA_a \times ET \times EF_o \times ED_o}{BW_a \times AT_n}$
Inhalation of emitting particles from soil	$\frac{CS \times I/PEF \times IRA_c \times ET \times EF \times ED_c}{BW_c \times AT_n}$	$\frac{CS \times I/PEF \times IRA_a \times ET \times EF_o \times ED_o}{BW_a \times AT_n}$

Note: Occupational noncarcinogenic risk assessment is based on adult exposure

Table 3

Age Adjusted Factors

$$IRA_{adj} = \frac{ED_c \times IRA_c}{BW_c} + \frac{(ED_{tot} - ED_c) \times IRA_a}{BW_a}$$

$$IRW_{adj} = \frac{ED_c \times IRW_c}{BW_c} + \frac{(ED_{tot} - ED_c) \times IRW_a}{BW_a}$$

$$SAW_{adj} = \frac{ED_c \times SAW_c}{BW_c} + \frac{(ED_{tot} - ED_c) \times SAW_a}{BW_a}$$

$$IRS_{adj} = \frac{ED_c \times IRS_c}{BW_c} + \frac{(ED_{tot} - ED_c) \times IRS_a}{BW_a}$$

$$SAS_{adj} = \frac{ED_c \times Sa_c}{BW_c} + \frac{(ED_{tot} - ED_c) \times Sa_a}{BW_a}$$

Note regarding age adjusted factor:

Because contact rate with tap water, ambient air, and residential soil are different for children and adults, carcinogenic risks during the first 30 years of life were calculated using age adjusted factor. These factors approximate the integrated exposure from birth until age 30 by combining contact rates, body weights, and exposure durations for two age groups - small children and adults.

Table 4

Exposure Variables Included in Tables 1, 2, and 3

Symbol	Term	Unit	Value	Reference
ABS	Absorption factor	-	User specified	
AF	Adherence factor	-	1.45	a, c
AT _c	Averaging time carcinogens	days	25550	
AT _n	Averaging time non-carcinogens	days	ED x 365	
BW _a	Body weight adult	kg	70	c
BW _c	Body weight child	kg	15	c
CF	Conversion factor	-	0.000001	-
CS	Chemical concentration in soil	mg/Kg-day	User specified	
CW	Chemical concentration in water	mg/L	User specified	
ED _C	Exposure duration child	years	6	c
ED _{total} ED	Exposure duration for carcinogen total or Residential	years	30	c
ED _O	Exposure duration occupational	years	25	c
EF	Exposure frequency	days	350	c

	residential			
ET	Exposure Time General/Occupational Groundwater Surface Water - ingestion Surface water - dermal Air -inhalation	hrs/day	8.0 0.2 2.6 2.6 24.0	c, d
FI	Fraction ingested Residential Occupational	-	1.0 0.5	b
IRA _a	Inhalation rate air adult	m ³ /day	20	b
IRA _{adj}	Inhalation rate - air adjusted	-	11.66	
IRA _c	Inhalation rate child	m ³ /day	12	b
IRA _a	Inhalation rate adult	m ³ /day	20	b
IR	Ingestion rate food Fruit/veggies Fish	kg/day	0.28 0.122 0.054	c,d
IRS _a	Ingestion rate soil adult	mg/day	100	b
IRS _c	Ingestion rate soil child	mg/day	200	b
IRS _{adj}	Ingestion - soil adjusted	-	114.29	
IRS _C	Ingestion rate soil child	mg/day	200	b
IRW _a	Ingestion rate water adult	L/day	2	b

IRW _{adj}	Ingestion -water adjusted	L-y/kg-d	1.09	
IRW _c	Ingestion rate water child	L/day	1	b
K	Volatilization factor, water to air	-	0.5	
PC	Permeability constant	cm/hr	User specified	b
PEF	Particulate emission factor	m ³ / kg	6.789926E08	f
SAW _c	Surface area child groundwater dermal surface water dermal	cm ²	7500	b,e
SAS _a SAS _c	Surface area soil occupational - adult child	cm ² /event	4500 1875	e
SAS _{adj}	Surface area soil adjusted	cm ² /event	2290	
SAW _a	Surface area for water contact adult	cm ²	820	b
SAW _{adj}	Surface area for water contact	cm ² /event	9200	
VF	Volatilization factor, soil to air	m ³ /kg	User specified	-

References:

- a. Risk Assessment Guidance for Superfund, Volume I, EPA/540/1-89/002, December 1989.
- b. Region III values
- c. Exposure Factors handbook, EPA/600/8-89/043, July 1989
- d. Human health evaluation manual supplemental guidance, OSWER Directive 9285.6-03. March 25, 1991.
- e. Dermal exposure Assessment, Principles and Applications, Interim Report. EPA/600/8-91/011b. January 1992.
- f. Technical Background Document for Draft Soil Screening Level Guidance. Office of Solid Waste and Emergency Response. EPA/540/R-94/101. December 1994.

EXHIBIT II.GG-3

Example of Certification of Closure

Exhibit II.GG-3 Example of Closure Certification Form

Closure activities have been conducted in accordance with the VDEQ-approved Closure Plan, dated _____, with the exception of the variations to the approved plan addressed in Section ____: of this report. Based on the information provided in this report; the work performed at the site satisfies the closure performance standard in 9 VAC 20-60-264. This statement presents the professional opinion of the undersigned that is based upon knowledge, information, and belief formulated in accordance with commonly accepted procedures consistent with applicable standards of practice. This statement does not constitute a guaranty or warranty, either expressed or implied.

Signature

Title

Date

I hereby certify that based on my inquiry of the person or persons who manage the work, or those persons directly responsible for gathering information, the information submitted is to the best of my knowledge and belief true, accurate, and complete, and the site has been closed in accordance with the approved Closure Plan.

Signature

Title

Date

MODULE III

OPERATING CONDITIONS

MODULE III - OPERATING CONDITIONS

III.A. WASTE IDENTIFICATION

Subject to the terms of this Permit, the Permittee may store in containers only the hazardous wastes with the waste descriptions and waste codes specified in Attachment II.BB, Section II.BB.1. The Permittee may not store a hazardous waste, which is not specified in Attachment II.BB.

III.A.1. Prohibitions on Storage

The storage of hazardous wastes restricted from land disposal under Subpart C, 40 CFR Part 264 is prohibited, unless the following conditions are met:

- (1) An owner/operator of a treatment, storage or disposal facility may store such wastes for up to one year unless the Department can demonstrate that such storage was not solely for the purpose of accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal.
- (2) The owner/operator of a treatment, storage or disposal facility may store wastes beyond one year; however, the owner/operator bears the burden of proving that such storage was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal.
- (3) If there are any conflict between Subpart E, 40 CFR 268, § 268.50, and (1) and (2) listed above, the requirements of § 268.50 will prevail.

III.A.2. EPA Hazardous Waste Code

The Permittee may manage and store hazardous wastes bearing the following hazardous waste codes:

D001, D003, D005, D006, D007, D008, D009, D011, D030, AND D036.

III.B. PLACEMENT REQUIREMENTS

III.B.1. Storage Location

Subject to the terms of this Permit, the Permittee may store hazardous wastes in containers in the Container Storage Area. (See Attachment III-A and -B).

Subject to the terms of the Permit, the Permittee may store, in the container storage area the wastes as specified in Section III.A.

III.B.2. Maximum Storage Quantity Limits

The storage in each container storage area is subject to the following maximum storage quantity limits:

Maximum Waste Quantity Net Explosive Weight (NEW)	Container Storage Unit
23,000	Structure 353C
11,000	Structure 951
11,000	Structure 952

III.C. **CONDITION OF CONTAINERS**

III.C.1. If a container holding hazardous waste is not in good condition (e.g., exhibits excessive rusting, structural defects, or any other condition that could lead to container rupture or leakage), the Permittee shall transfer the waste from that container to a compatible container which is in good condition, or manage the waste in some other way that complies with the requirements of Part 264, § 264.171. The damaged container shall be managed as a hazardous waste unless it can be considered empty pursuant to 40 CFR 261.7.

III.C.2. The Permittee shall ensure that all containers of hazardous waste are labeled with the words "Hazardous Waste" and the contents of the container. The Permittee shall also ensure that all labels are not obscured or otherwise unreadable and that containers are always oriented so as to allow inspection of the labels.

III.D. **CONTAINER MANAGEMENT PRACTICES**

III.D.1. The Permittee shall operate and maintain all permitted hazardous waste storage areas in accordance with 40 CFR 264, Subpart I, and the plans and specifications in Attachments III-C and- D.

III.D.2. Containers of hazardous waste shall not be stored anywhere other than the permitted container storage areas. Hazardous waste generated on-site may be accumulated in accumulation areas which meet the requirements of 40 CFR 262.

III.D.3. Aisles approximately 18-inch wide shall be provided so that the individual containers are accessible for inspection. Front wall clearance of 2-feet shall be maintained. A space of at least 6-inches shall be maintained from the stacks to the side and rear walls and to the ceiling of the magazine. The bottom layer of the container shall be raised off the floor by suitable metal dunnage to provide a ventilation space between the bottom of the stack and the floor and to protect the material in the stack from dampness and the unlikely event of water damage. Containers will be arranged so individual containers can be visibly inspected.

The Permittee shall maintain aisle space within container storage buildings as specified in Attachment II.DD of this Permit.

- III.D.4. The integrity of storage area containment systems shall be maintained as required by 40 CFR 264.175 and the plans and specifications in Attachments III-C and- D. Cracks, gaps, loss of integrity, deterioration, corrosion, or erosion of pads, berms, curbs, sumps, construction joints, and coatings of the container storage areas shall be repaired in accordance with the protocols and frequencies delineated in Attachment III-E.
- III.D.5. Containers of hazardous waste may not be placed or stored on their sides except when containers are empty.
- III.D.6. The Permittee shall keep all hazardous waste containers securely closed except when adding or removing waste, and shall not open, handle, or store the container in a manner which may rupture the container or cause it to leak.
- III.D.7. The Permittee shall inspect all containers and secondary containment systems at least weekly in accordance with 40 CFR 264.174 and Attachment II-CC of this Permit.

III.E. SPECIAL REQUIREMENTS FOR IGNITABLE, REACTIVES, AND INCOMPATIBLE WASTES

- III.E.1. The Permittee shall ensure that all containers used for hazardous waste management are made of or lined with materials which will not react with and are otherwise compatible with the waste to be stored (40 CFR 264.172).
- III.E.2. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container, and shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material (40 CFR 264.177).
- III.E.3. The Permittee shall ensure that all equipment used for transfer of hazardous waste to or from containers (funnels, pumps, hoses, etc.) is compatible with the wastes, and is decontaminated before it is used for the transfer of incompatible wastes.
- III.E.4. The Permittee shall comply with the requirements for storage of flammable liquids as found in the applicable NFPA 30 (National Fire Protection Association's "Flammable and Combustible Liquids Code"). The Permittee shall not locate containers holding ignitable wastes within 50 feet of the facility's closest property line pursuant to 40 CFR 264.
- III.E.5. The Permittee shall manage ignitable waste in containers in accordance with Attachment II-DD (40 CFR 264.176).

III.E.6. The ignitable wastes in containers are compatible with the wastes stored on-site and therefore only external ignition sources may ignite the wastes. To prevent external ignition, no smoking is allowed within the hazardous waste storage area and no welding and other open flames are allowed when ignitable wastes are present. In these areas "No Smoking" and "Flammables" warning signs are posted. In addition, spark-proof tools are used to open and reseal containers and all electrical equipment is grounded.

III.E.7 The Permittee shall manage reactive waste in containers in accordance with 40 CFR 264.176 and Attachment II-DD.

III.F. AIR EMISSION STANDARDS FOR CONTAINERS

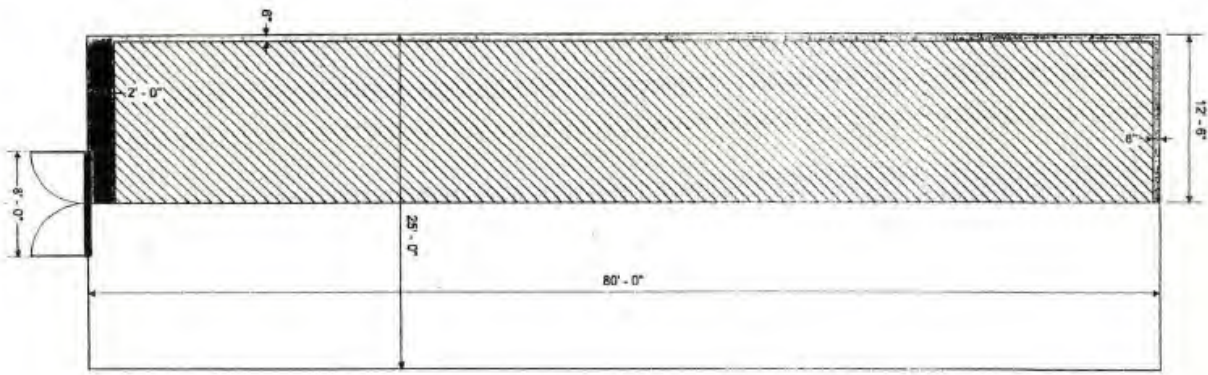
Pursuant to 40 CFR 264.1082(c (1), the Permittee is exempt from applicability of Subpart CC, §§264.1084 through 264.1087, provided that the waste management unit is a container for which all hazardous waste entering the unit has an average Volatile Organic (VO) concentration at the point of waste origination of less than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in § 264.1083(a). The owner or operator shall review and update, as necessary, this determination at least every 12 months following the date of the initial determination for the hazardous waste streams entering the unit.

III.G. HAZARDOUS WASTE MUNITIONS AND EXPLOSIVES STORAGE

The Permittee who store munitions and explosive hazardous wastes shall comply with 40 CFR 264.1200, and 40 CFR Subpart I.

ATTACHMENT III-A
STRUCTURE 353C LAYOUT

Structure 353C
Storage Layout



Portion of 353C to be used for storage of
Explosive Hazardous Waste under the
RCRA Part B Hazardous Waste Storage
Permit



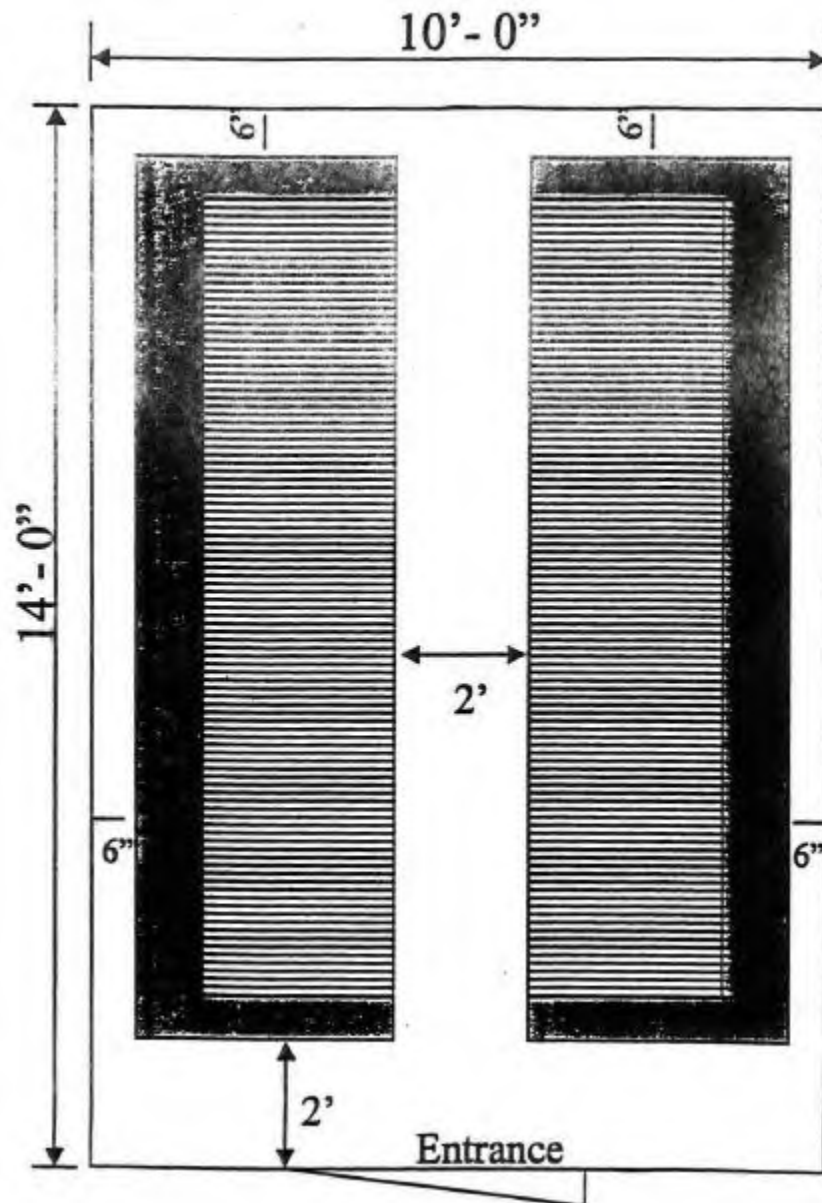
Represents pallets that Explosive
Hazardous Waste may be stored on

NSWC Dahlgren

ATTACHMENT III-B

STRUCTURES 951 AND 952 LAYOUT

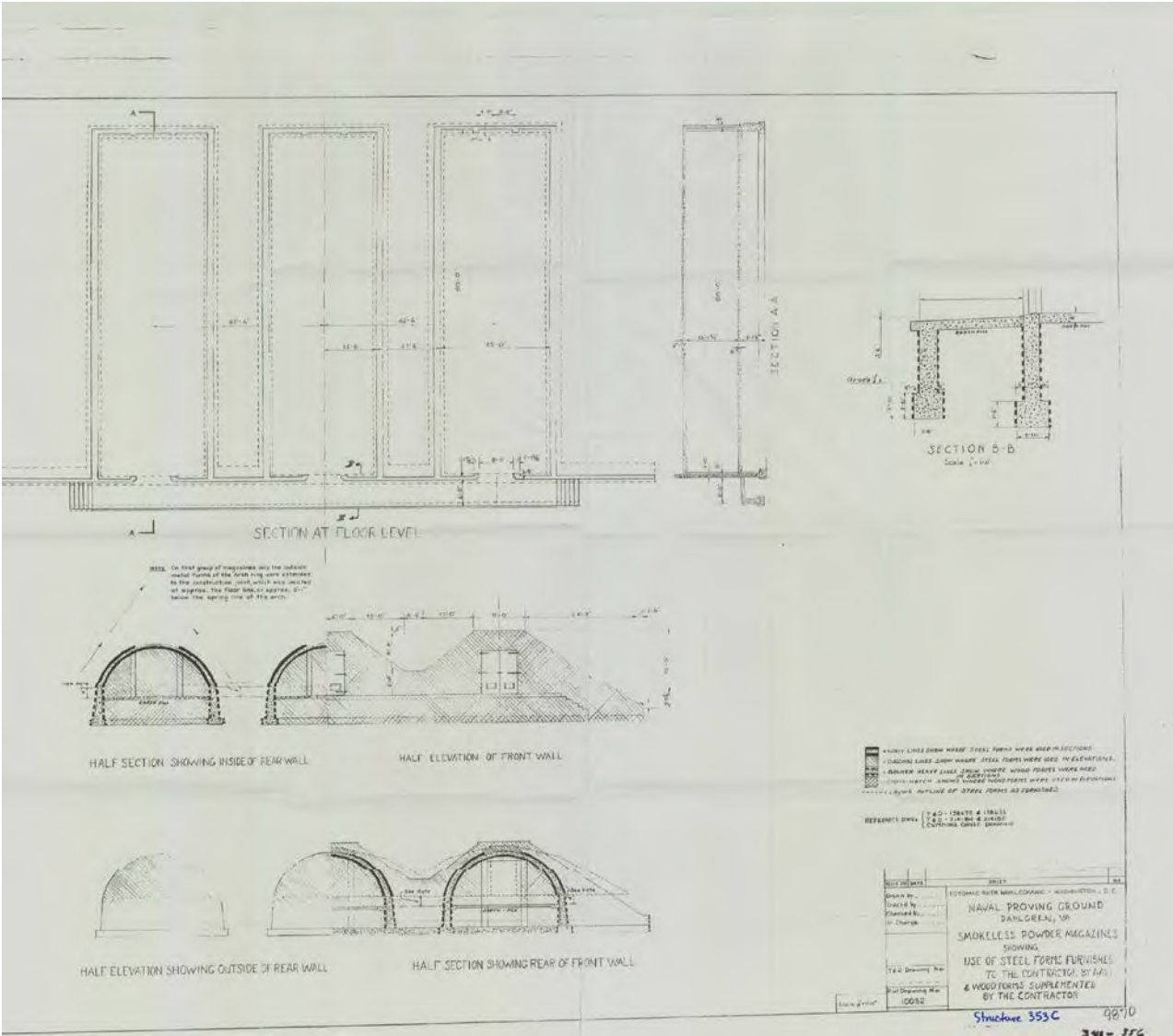
Storage Layout for Structures 951 and 952



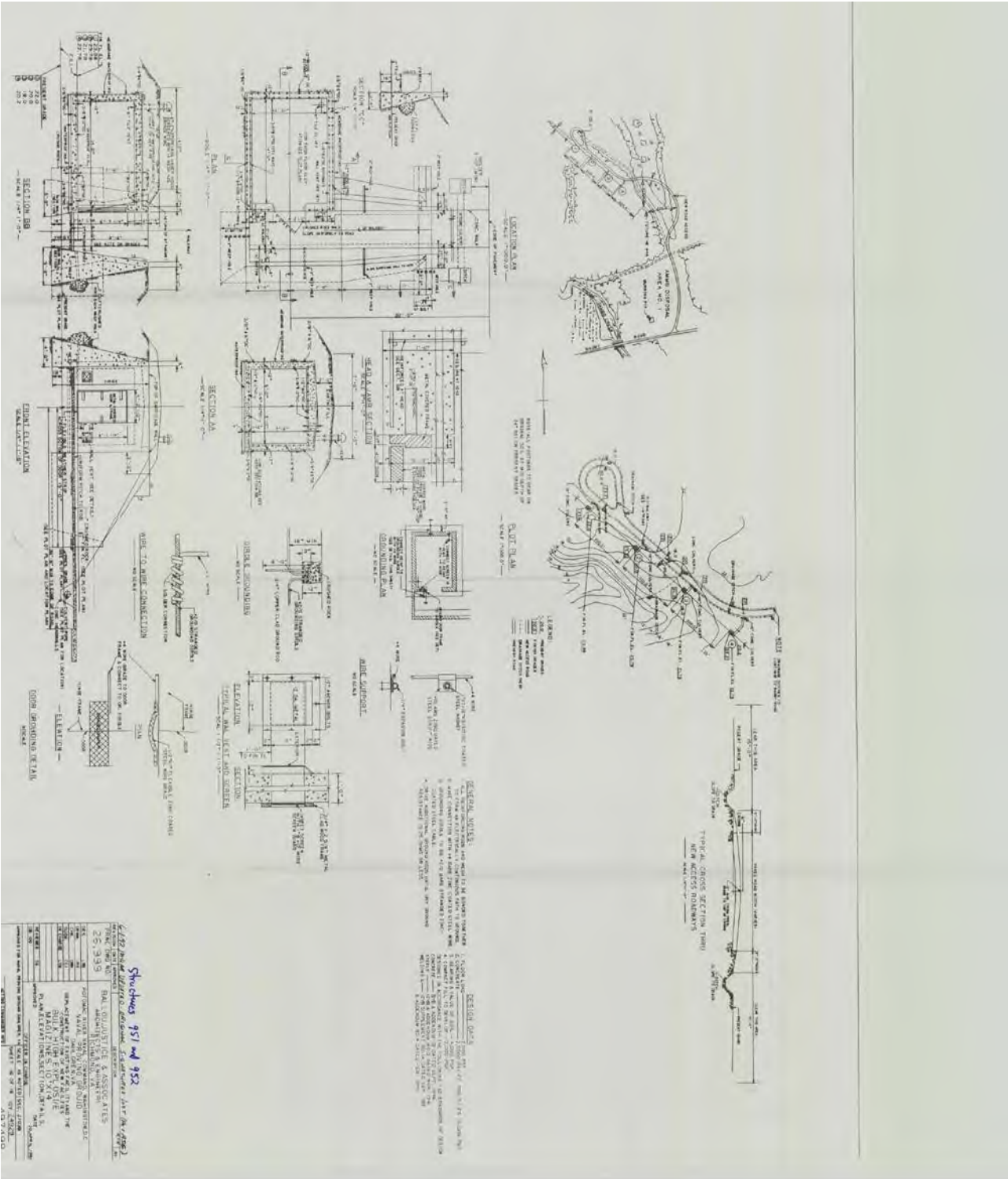
-Shaded area represents pallets, striped area represents where explosive hazardous waste may be stored on pallets

ATTACHMENT III-C

CONSTRUCTION DRAWING FOR STRUCTURE 353C



ATTACHMENT III-D
CONSTRUCTION DRAWING FOR STRUCTURES 951 AND 952



ATTACHMENT III-E

**CERTIFICATION OF DESIGN FOR
STRUCTURES 353C, 951 AND 952**

XDW410
6 August 2003

MEMORANDUM

From: XDW410 (Beegle)
To: XDC84 (Lovejoy)

Subj: MAGAZINES 353C, 951, & 952 STRUCTURE CERTIFICATION

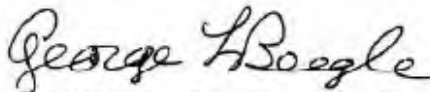
Magazines 951 and 952 are 10' by 14' earth covered reinforced concrete box magazines. Magazine 353C is a 25' by 80' earth covered reinforced concrete arched magazine.

On 4 August 2003 Vanessa Lovejoy (XDC84), Richard Bentley (G635), and George Beegle (XDW410) visited magazines 353C, 951, and 952. Interior and exterior visual inspections were performed. The magazines are in good condition.

In 1993 Mason and Hanger Engineering performed a structural analysis on all magazines per:
MIL-HDBK-1002/1 Structural Engineering General Requirements
MIL-HDBK-1002/2 Structural Engineering Loads
NAVFAC P-355 Seismic Design for Buildings
This analysis meets the requirements of the American Concrete Institute, Building Code & Commentary ACI 318-89.

Magazines 353C, 951, and 952 are structurally safe for:
Both static and dynamic loads
Stresses due to installation and construction operations
Stresses due to the maximum quantity of waste
Stresses due to personnel and heavy equipment that operate within the unit
Stresses from settlement, compressions, and uplift.
Internal and external pressure gradients
Climate conditions (Freeze-thaw stresses)

The magazines are structurally safe for all applicable loads, and are adequately inspected and maintained.



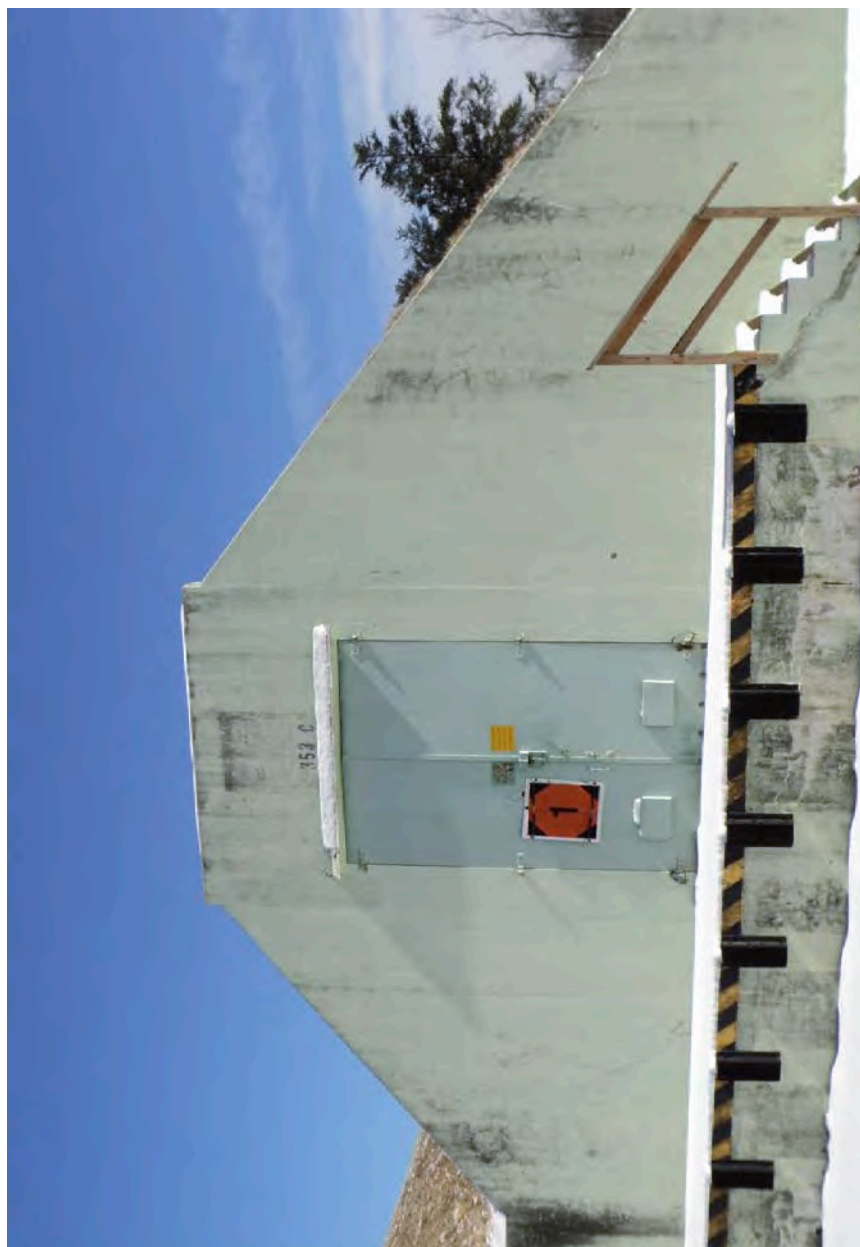
George L. Beegle, PE, VA No.22009
Lead Civil Engineer
Public Works, Design Branch



ATTACHMENT III-F

PICTURES OF STRUCTURES 353C, 951, and 952

Magazine – Structure 353C



Magazine - Structure 951



Magazine - Structure 952



MODULE IV

SITE-WIDE CORRECTIVE ACTION

MODULE IV –SITE - WIDE CORRECTIVE ACTION

IV.A. CORRECTIVE ACTION FOR CONTINUING RELEASES; PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

- IV.A.1. On August 24, 1998, United States Environmental Protection Agency (US EPA) issued a memorandum stating that RCRA Federal Facilities whose entire site's Corrective Action (CA) responsibilities have been referred to another Federal (Non-RCRA) authority such as EPA Superfund Program be removed from RCRA CA Baseline. As a result of this memorandum, NSWCDD (the Permittee) has been removed from the RCRA CA Baseline and is managed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

This section contains the list of sites, Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) that are managed under CERCLA. The list and additional detail on each site, unit or area is maintained in the Facility's Site Management Plan and is current as of June 2014. The next update of this section will occur at the time of next permit renewal. In addition, the 353C, 951, and 952 Explosive Hazardous Waste Storage Magazines are Hazardous Waste Management Units (HWMUs) and are still actively storing hazardous waste but they are not in the current Facility's Site Management Plan.

IV.B. SOLID WASTE MANAGEMENT UNITS (SWMUs) AND AREAS OF CONERN (AOCS) TABLE

Table 1 – Current Sites Grouped by Priorities

Site No.	Site Name	Current Status (as of June 1, 2014)
<i>IR Sites</i>		
Site 2	Fenced Ordnance Burial Area	ROD - Remedial Action Completed Long-Term Monitoring Underway ICs Implemented
Site 3	Ordnance Burn Structure	Removal Action Completed ROD – No Further Action
Site 9	Disposal/Burn Area	ROD – Remedial Action Completed Long-Term Monitoring Underway ICs Implemented Wetland Delineation Completed
Site 10	Hideaway Pond	ROD - Long-Term Monitoring Underway ICs Implemented
Site 12	Chemical Burn Area	ROD - Selected Remedial Action Completed ESD Completed Contingent Remedy Implementation UFP-SAP VSAP Completed CSS Remediation completed
Site 17	1400 Area Landfill	ROD - Remedial Action Completed Long-Term Monitoring Underway ICs Implemented Wetland Delineation Completed Methane Mitigation System Completed
Site 19	Transformer Draining Area	Removal Action Completed ROD – No Further Action
Site 25	Pesticide Rinse Area	ROD – Remedial Action Completed Wetland Delineation Completed
Site 29	Battery Service Area	Removal Action Completed ROD – No Further Action
Site 44	Rocket Motor Pit	Removal Action Completed ROD – No Further Action
Site 58	Building 1350 Landfill	ROD – Remedial Action Completed
<i>Priority 1 Sites</i>		
Site 6	Terminal Range Airplane Park	ROD – Remedial Action Completed Wetland Delineation Completed
Site 21	Gun Barrel Decoppering Area	Removal Action Completed Decision Document – No Further Action
Site 22	Gun Barrel Degreasing Area, North Main Range	Removal Action Completed Decision Document – No Further Action
Site 31	Airplane Park Dump, EEA	Removal Action Completed ROD - No Further Action
Site 32	Fast Cook-Off Pit and Pond, EEA	RI/FS Completed ROD - No Further Action
Site 45	July 28, 1992 Landfill B	Removal Action Completed Decision Document – No Further Action

Site No.	Site Name	Current Status (as of June 1, 2014)
Site 46	July 28, 1992 Landfill A: Stump Dump Road	ROD – Remedial Action Completed Wetland Delineation Completed
Site 50	Fill Areas Northeast EEA	Removal Action Completed Decision Document – No Further Action Wetland Delineation Completed
Site 51	Battery Locker Acid Draining Area	SSP Completed – No Further Action
Site 53	OWS 207 300	Removal Action Completed Decision Document – No Further Action
Site 55	Cooling Pond	RI/FS Completed ROD - No Further Action
Priority 2 Sites		
Site 13	Gambo Creek Truck Wash Area	Removal Action Completed Decision Document – No Further Action
Site 20	Former Electroplating Waste UST	FFS Completed ROD Completed Soil Remedial Action Complete Groundwater Remedial Action Underway RACR Completed LTO/LTM underway
Site 23	Building 480 Lot (PCB Storage)	FFS Completed ROD Completed Soil Remedial Action Complete Groundwater Remedial Action Underway RACR Completed LTO/LTM underway
Site 37	Lead Contamination Area	ROD Amendment Completed Remedial Action Completed RACR Completed ICs Implemented Wetland Delineation Completed
Site 56	Gun Barrel Degreasing Area, Railway Spur	SSP Completed Decision Document – No Further Action
Site 57	Shell House Dump	Surface Soil Investigation Completed Surface Debris Removal Completed Decision Document – No Further Action -Planned
Priority 3 Sites		
Site 4	Case Storage Area	EE/CA Completed VSAP Completed ESS and SAR Completed Removal Action Completed Decision Document - No Further Action -Planned
Site 14	CW Evaporation Pond	EE/CA Completed VSAP Completed ESS and SAR Completed Removal Action Completed Groundwater Monitoring Planned RI/FFS/PRAP Completed Draft Final ROD Underway

Site No.	Site Name	Current Status (as of June 1, 2014)
Site 15	Scrap Area	EE/CA Completed VSAP Completed ESS and SAR Completed Removal Action Completed Decision Document - No Further Action -Planned
Site 38	Building 1349 Pest Control Outside Area	SSP Completed Closeout Report – No Further Action
Site 40	Building 120B DRMO Lot	SSP Completed Closeout Report – No Further Action ICs Implemented
Site 61a	Gambo Creek Ash Dump	Remedial Investigation Completed Pilot Study/Removal Action Completed
Site 43	Higley Road Land Application Area	Removal Action Completed Decision Document – No Further Action
Site 62	Building 396	RI/FS Completed Removal Action Completed ROD – No Further Action
Site 63	Building 198 Neutralization Tank	EE/CA Completed Removal Action Completed Closeout Report – No Further Action
Site 64	Gum Alley Disposal Area	Ineligible for IR Program
Priority 4 Sites		
Site 1 *	Old Bombing Range	Decision Document – Action is deferred until the range is closed or transferred.
Site 5 *	Projectile Disposal Area	Decision Document – Action is deferred until the range is closed or transferred.
Site 36	Depleted Uranium Mound, Pumpkin Neck, EEA	Removal Action Completed ROD – No Further Action
Site 47a	WWI Munitions Mound	EE/CA Completed Removal Action Completed Closeout Report – No Further Action
Site 47b	EOD Scrap Area	EE/CA Completed Removal Action Completed Closeout Report – No Further Action
Site 49	Depleted Uranium Gun Butt	Removal Action Completed ROD – No Further Action

Note: * Sites removed from ER, N program funding.

Table 2 – Closed-Out Sites

Site No.	Site Name	Current Phase (as of June 15, 2007)	Close-out Indust./Res.
SWMU 3	Building 194AA (Concrete Pad)	Closed Out	Res.
SWMU 15	Building 120B Contractor Staging Area	Closed Out	Indust.
SWMU 20/Site 41	Compost Area	Closed Out	Res.
SWMU 23	Building 456 Oil Waste Drum	Closed Out	Res.
SWMU 27	Tank 280 Contractor Staging Area	Closed Out	Res.
SWMU 57/Site 60	Building 445 Star Gauge Loading Dock	Closed Out	Res.
SWMU 61	Paint Can Crusher	Closed Out	Res.
SWMU 62	Paint Can Dumpster	Closed Out	Res.
SWMU 64	Building 448 Sand Blast Area	Closed Out	Res.
SWMU 67	Building 448 Tar Tank Area	Closed Out	Res.
SWMU 70	Building 152 TCA AA	Closed Out	Indust.
SWMU 77	Building 1329 Wash Area	Closed Out	Res.
SWMU 78	Building 1121 Former Waste Oil UST	Closed Out	Res.
SWMU 82	Electroplating Line and WWT	Closed Out	Res.
SWMU 101	Building 155 Auto Shop Waste Oil Filter and UST	Closed Out	Res.
SWMU 115	Building 1282 Auto Hobby Outside Used Oil Storage	Closed Out	Res.
SWMU 119	Building 1282 Auto Hobby Used Oil Tank	Closed Out	Res.
SWMU 125/Site 52	OWS 107-350 (Yardcraft Area)	Closed Out	Res.
SWMU 127	OWS 1121-300, OWS 115-350, OWS 402-30,000, and OWS 486-1000	Closed Out	Res.
SWMU 128/Site 54	OWS 1121- Old	Closed Out	Res.
SWMU 130	Yardcraft Oil Storage Area	Closed Out	Res.
SWMU 131/Site 28	Gambo Creek Compost Area	Closed Out	Res.
AOC A	Otto Fuel Spill	Closed Out	Indust.
AOC O	Building 1369 Pesticide Spill Area	Closed Out	Res.
AOC X	Classified Documents Incinerator Sewage Holding Tank	Closed Out	Res.
AOC X7/Site 39	Open Storage Area Main Battery	Closed Out	Indust.
AOC Z	Terminal Range Building 109	Closed Out	Res.

Site No.	Site Name	Current Phase (as of June 15, 2007)	Close-out Indust./Res.
Other Units C3	Scar at Phalanx Test Area	Closed Out	Res.
Other Units C6	Former Radio Testing Area	Closed Out	Res.
Additional Areas X6	South Hangar Former Tank Area	Closed Out	Res.
Site 59	Octagon Pad Dump, EEA	Closed Out	Res.
Building 126	Former Powder Magazine	Closed Out	Res.
Site 61b	Gambo Creek Projectile Disposal Area	Closed Out	Res.
353C, 951, and 952	Explosive Hazardous Waste Storage	Active	The hazardous waste storage operations will be closed when the Center's research, development, testing, and evaluation mission is terminated.

Notes:

- Closed out - A close-out document is available and no further action is required for this site.
- Indust. - Industrial Scenario
- Res. - Residential Scenario
- Sampled - Site sampled, awaiting results/decision
- Active - Currently storing explosive hazardous waste
- Terminated - The hazardous waste storage operations will be closed when the Center's research, development, testing, and evaluation mission is terminated.